

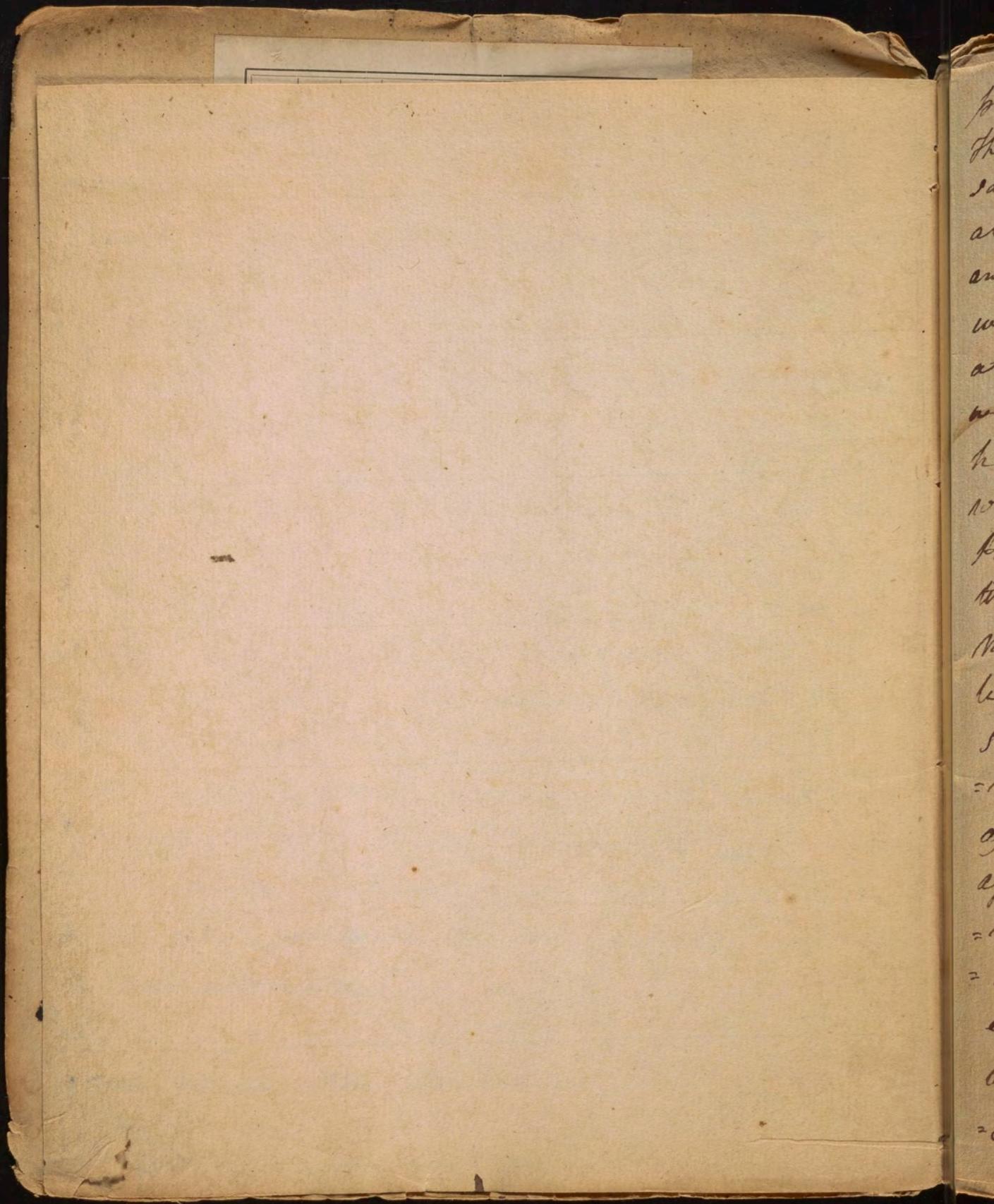
Introductory Lecture
for 1813 —

also

Delivered in 1814

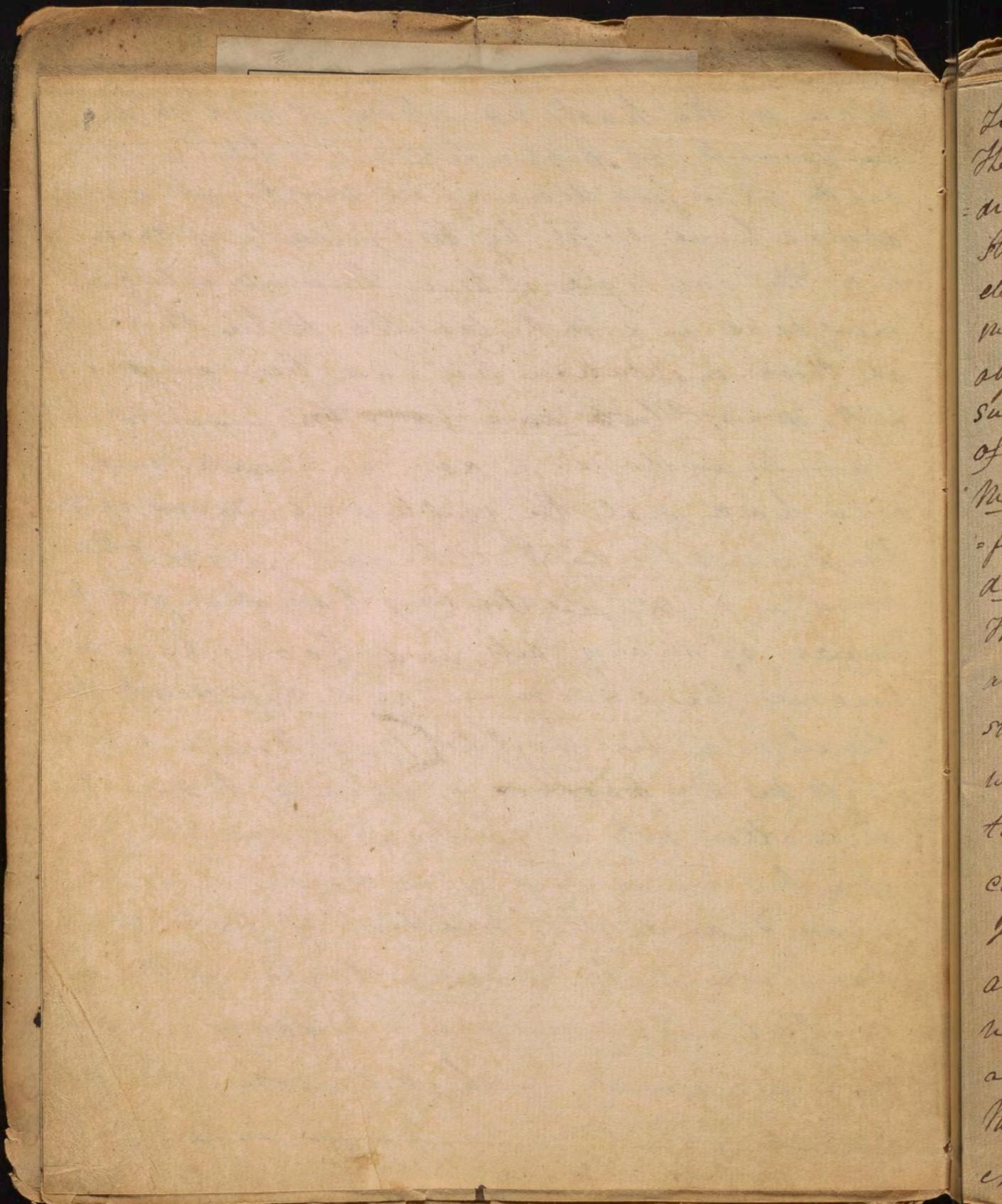
By
James Rush

I have come before you ~~to~~^{to} deliver an introduction to the lectures of
the late Dr Benjamin Rush, on the Institutes
and practice of Medicine. In thus address-
ing you I do not feel as if I were perform-
ing a voluntary task; I consider it a duty.
By the favour of the author of these lectures
I have ~~been made~~^{written} the proposer of them,
and I stand ~~to be~~ unworthy of their trust,
If I were not, by an endeavour to extend the
truths they contain, to aim at some slender
imitation of the exertion of him who used
so much industry to originate and teach them.
The present time has been called with a re-
sultant of reproach, the age of lectures. In
thus adding to the number I feel disposed to
question the advantages that we may be-
come from their mode of instruction, and to
ask if greater benefit might not be derived
from the more deliberate opportunity which
books afford, for receiving knowledge
and reflecting upon it, than can take



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place in the hasty transition of oral discourse
The business of public lectures is like a flood
and other practices of the world, into which
abuses have crept by the interest of men
and the oversight of time, their advantage
was real and indispensable to the student
at their institution, they had their origin
with ~~Zeno, Plato and Socrates~~, teachers who
had knowledge to communicate, and
who had not the multiplied means of the
Press to extend that knowledge to other
times and places. Printing has changed the
mode of many arts, and books have now
become the common and sufficient in-
structors of the world. [But there is a like-
ness in the ^{against} ~~for~~ practice of man to those effects
of matter where motion is continued
after the cause that gave rise to it is re-
moved, and the practice of public lec-
tures, which the circumstances of those
early teachers rendered necessary, has
been continued by Habit, when the oc-
casion for them no longer exists -



To this remark there are some exceptions.³
The elements of all knowledge must be ad-
duced to the senses, and among medical
studies there are some branches so absolutely
elementary that ~~an~~ attempt to teach them
in any other way than by exhibiting their
objects to the senses, would be all in vain.
Such branches are Anatomy, the experiments
of Chemistry, the operations of Surgery, and
Materia Medica where it is properly or use-
fully taught, by shewing and not merely
describing the sensible qualities of Medicines.
These subjects will be more easily understood
and more impressively conveyed by the demon-
strations of a lecturer, another occasion on
which lectures may be useful is when they con-
tain knowledge or peculiar opinions which
cannot be obtained from any other source -
I need not say with what pleasure I claim your
attention. The lectures you will hear contain
not only the record of as much experience
as has fallen to the lot of any teacher, but
they contain original deductions from this
experience, and an application of these prin-

v you may know

v The art of -

ciples to medical practice, That the opinions & contain'd in those lectures are original and useful I have only to ~~state that~~ state that the trial and conviction of their truth, thro'out a whole country has overcome as powerful an opposition as was ever raised against any innovation, and that with the double operation which many butts have of offending and convincing, they have by the same persons been both condemned and practiced. —

I will employ the present time in stating the objects of this course, and pointing out the manner in which those objects may be studied and improved to the greatest advantage. —

By the Institute or Institutions of Medicine is meant the knowledge we have of the phenomena of the human body in health and in disease, and the effect of the medicines when applied to it, reduced to general rules and made preparatory to our entering on the practice of Medicine, By the practice of Medicine is meant the use of these rules in all the individual cases of disease to which they can be applied [The Institute and a practice of medicine is no more than that division which every science admits into a speculative and practical part.]

The Institute or the speculative parts of Medical

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has been subdivided into Physiology, Pathology⁵,
Hygiene and Therapeutics each of which I will
endeavour to explain -

In a healthy human body there are various actions
taking place such as the circulation of the Blood,
the Motions of the Muscles and Nerves, the diges-
tion of food, the secretion of saliva, bile and
perspiration, the functions of the Mind, and many
others, have the branch that ^{considers} ~~studies~~ the ^{healthy} phenomena
in all these cases and ~~teaches~~ ^{explains} their ~~courses~~ ^{courses}, is called
Physiology -

If the human body were to remain always
in the regular exercise of these healthy actions,
Physiology would include every thing that could
be known concerning that body, But these ac-
tions, are liable to be altered and this altera-
tion constitutes disease - The next step then is
to enquire what may prevent this alteration
from taking place - The branch which ^{considers} ~~studies~~
~~the means of preventing~~ ^{the} ~~healthy~~ ^{disseased}
actions is called Hygiene.

But we often find that all endeavours to
preserve the healthy actions are fruitless, and
disease occurs. ~~the~~ ^{is} ~~now~~ ^{now} ~~aim~~ ^{aim} to cure ~~the~~ ^{the} and

v. and the parts they particularly effect -

In order to ~~to~~^{cure it -}, we must enquire into the causes which have produced this disease, so ~~as~~^{that} that they may be removed, the part of the body it occurs in, that we may know where to apply the remedy and the signs or symptoms ~~more~~^{more} that we may know the danger they indicate, or may choose the remedy for them. The branch that ~~considers~~^{considers} all these particulars of the Causes, Seats, Effects and signs of disease is called Pathology —

When Pathology has thus taught us the nature of disease our next endeavour is to apply the remedy to it. — The branch which ~~considers~~^{teaches} the manner and degree in which the medicines operate on the body so as to suit them to the circumstances of disease, is called Therapeutics —

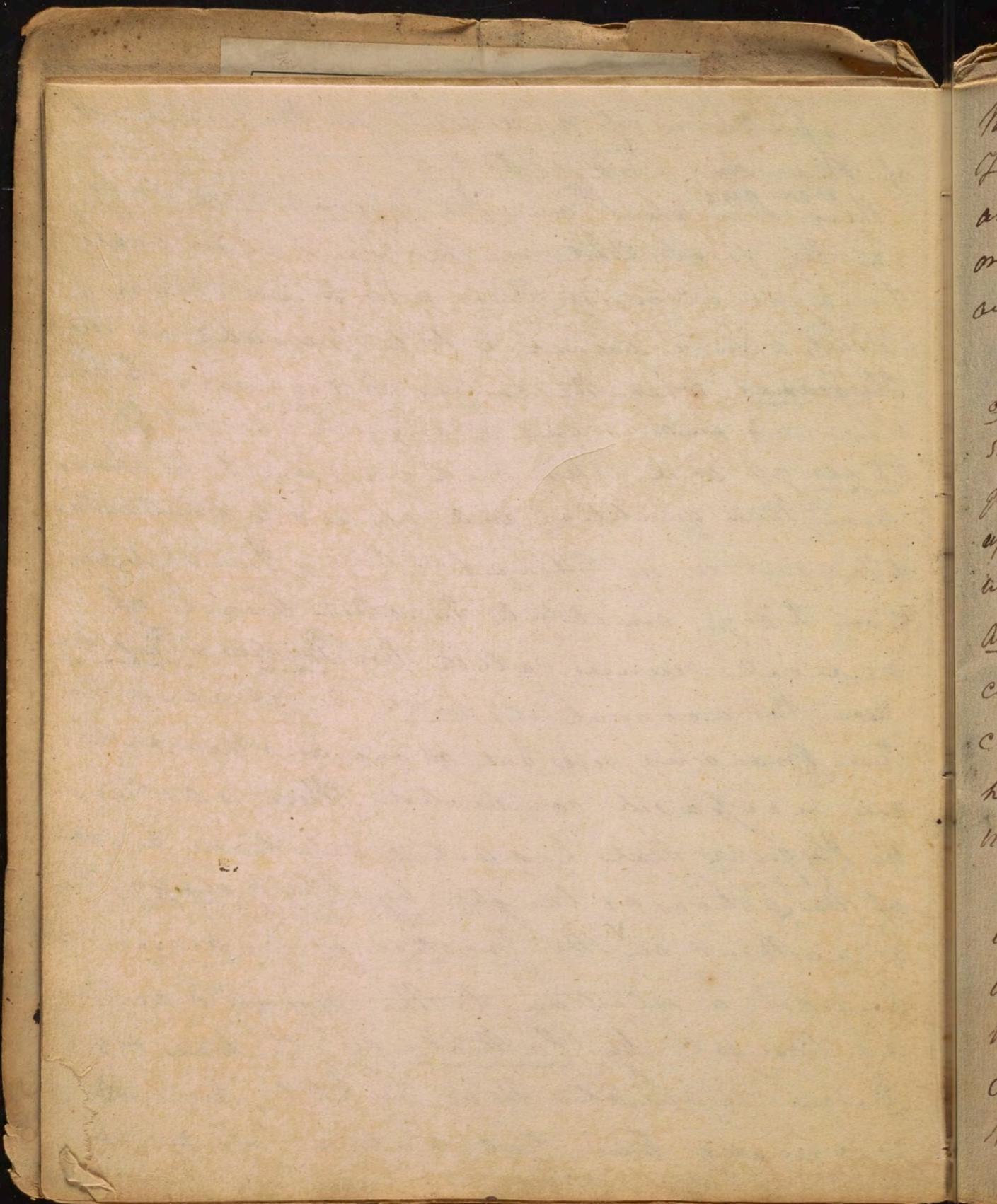
The Institutes then consist of these four parts Physiology or the theory of the healthy actions of the body — Hygeine or the Theory of the art for preserving these actions Pathology or the theory of the diseased actions — and Therapeutics or the Theory of

v. of the Institutes

v. Therapeutics or

The operations of medicines for the removal
of these diseased actions. —

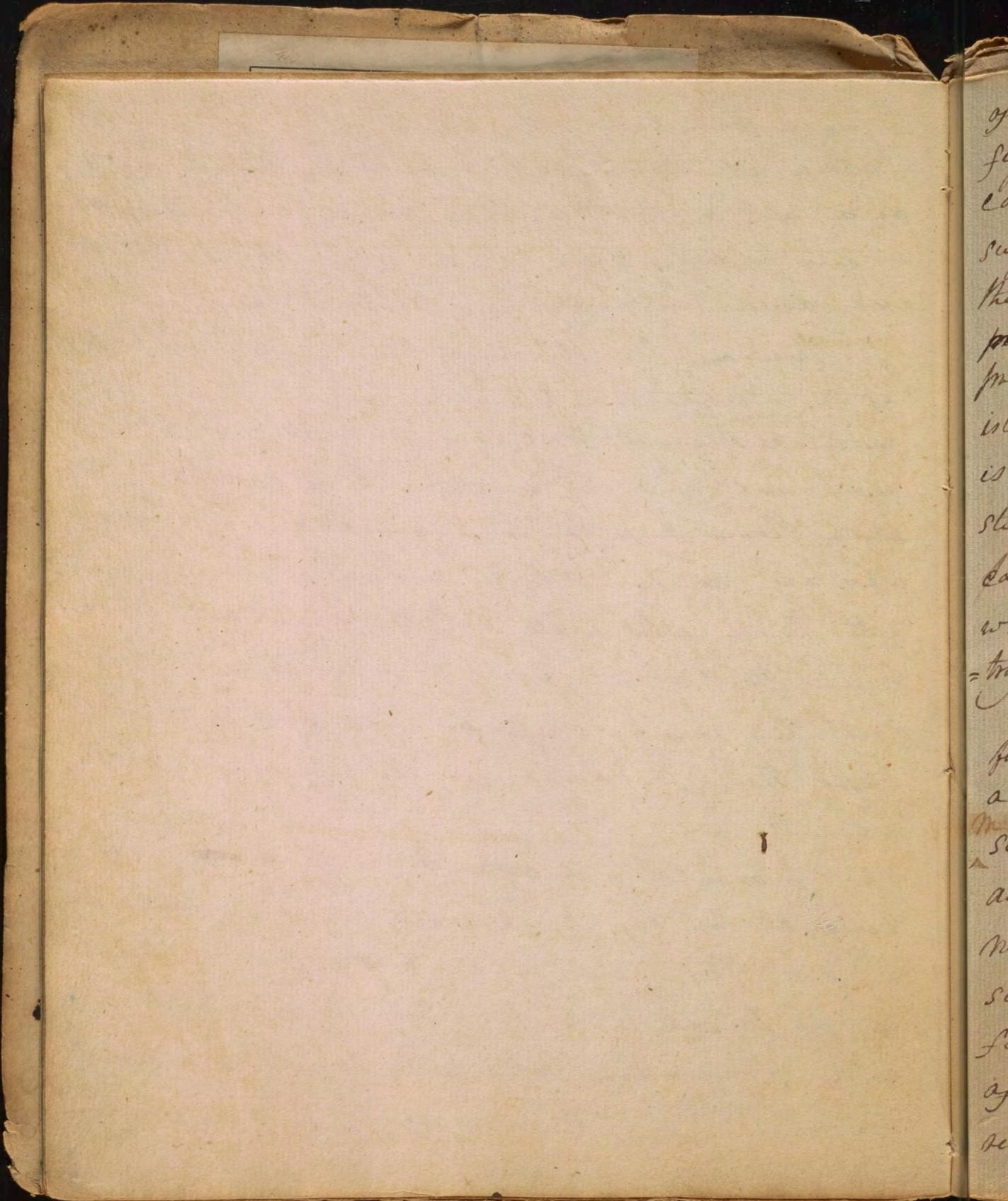
These branches give the general rules only
on the facts that are included under each.
The application of these rules to particular
cases, when a disease is to be prevented as in
Hygience, when the causes of disease are to be
removed and signs distinguished as in Pa-
thology and when medicines are to be chosen
from their qualities and applied to particular
diseases as in Therapeutics — This applica-
tion I say constitutes the other branch of
medical science called The Practice of Medicine.
From this account it must be obvious that
these branches rise out of one another, and
are necessarily connected. There is nothing
in Hygience that has not a relation to some
of the ^{heat the} actions as taught by Physiology. There
is nothing in ^{v.} The practice of medicine that
has not a relation to the diseased actions
as taught by Pathology. It is true we
have separated them by little, but it ^{langu}
is equally true that nature has made



Hem dependent on each other in reality
Taken all together they are an entire System
and as a system they must be taught
or we abandon nature for the sake of
our own unmeaning distinctions. —

These are the objects of the Institute and Practice
of Medicine, and I will presume to point out
several things that are necessary for the ac-
quisition and advancement of our knowledge
upon them. I suppose I am addressing persons
who are anxious to improve a very imperfect
art, those who will not be contented to re-
ceive the talent from their predecessors, and
carefully wrap it up for their posterity, I
hope their successors will receive it with
interest —

I would first ~~say~~ ^{wish} that you ~~may~~ ^{may be} con-
vinced the object your are pursuing will be
useful. This is not an in particular request.
We do know that there are Medical Hippo-
criti. Physicians who practice and who at
the same time believe in the entire uncertainty



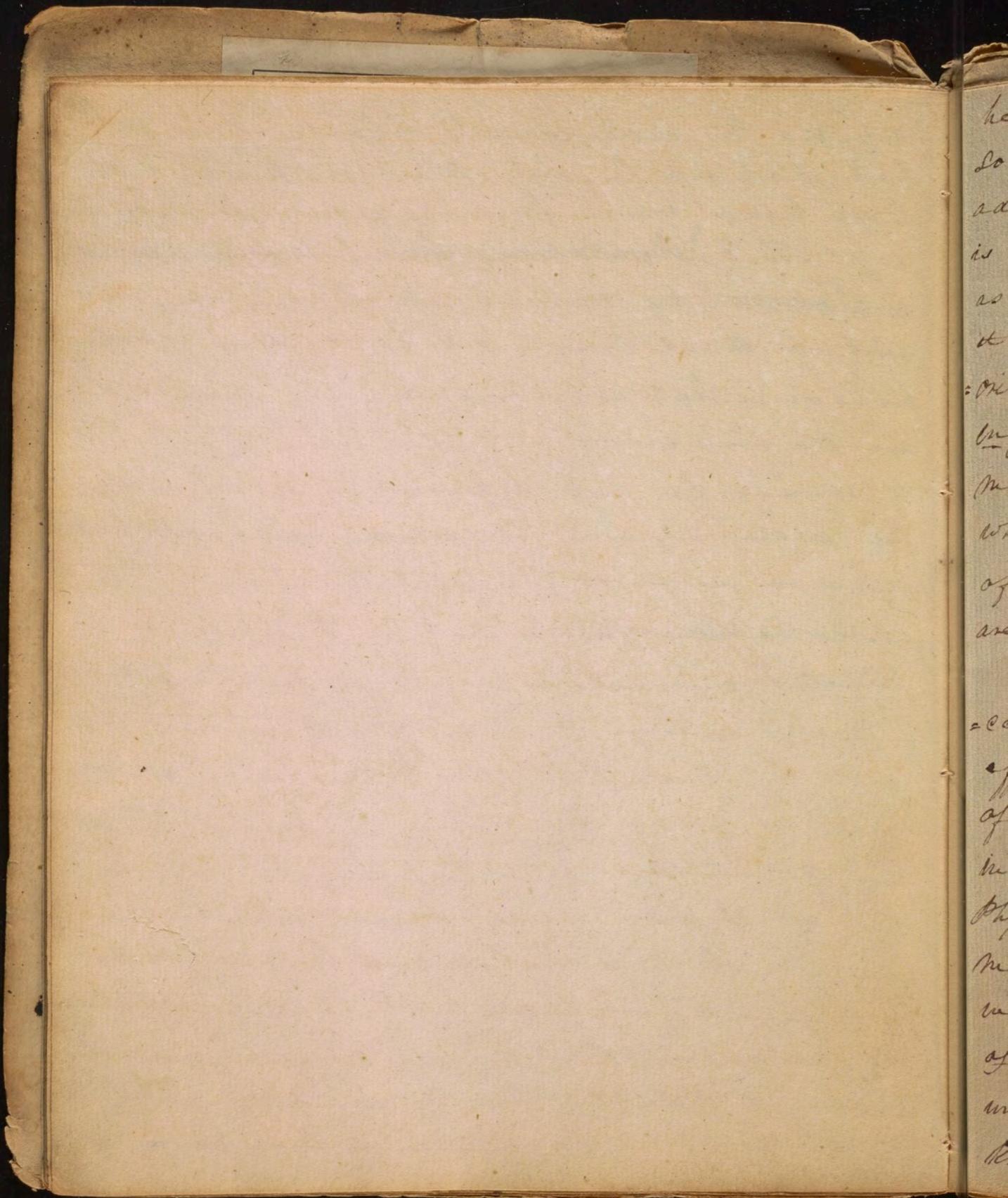
of the act - That the partiality of other professions, the perverseness from incurable diseases, and the inventions of wit, should suggest this idea, we need not wonder, But the honesty at least of a physician should ~~prevent~~ repudiate it, if his knowledge could not prevent it from rising - Where this idea exists let us never attempt to refute it, since it is held like all sectarian opinion in obstinacy and pride, and since a physician can have no interest in refuting that opinion which the fear of death will always destroy.

In the subject I propose to teach you will find that inconvenience which is felt in the acquisition of all knowledge except the ~~Mathematical~~ ^{of giving} science of quantity ~~and motion~~, I mean the difficulty a system of instruction purely elementary, and rising by demonstration and successive truths, till the whole has one face of complete perspicuity. The labour of the mind has its waste and its useless remnant, like the labour of the hands in the

v. There is a late comparison
of knowledge to a circle -

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act, and this must consist in the necessary introduction into the subject we are teaching of those things which have not been previously explained. ~~This is to go back to the beginning~~, we cannot set off from one point of it, without leaving behind some part unknown. That is connected with what we are tracing before us - and we are obliged to remedy the imperfection by going over the circle again. ~~This is to go over the book three times~~ because we find one part necessary to the explanation of another. The Inquiries and Practice are not a purely elementary subj^t. They imply some acquaintance with subjects to which they merely make an allusion. These subjects are Anatomy, Chemistry, the qualities of medicines and the prominent symptoms of disease - I wish you may have some acquaintance with these, they contain the visible signs that should be known before entering on the present undertaking. - Every science has its alphabet, its syllables and its words, to which we must be familiarized before that science can



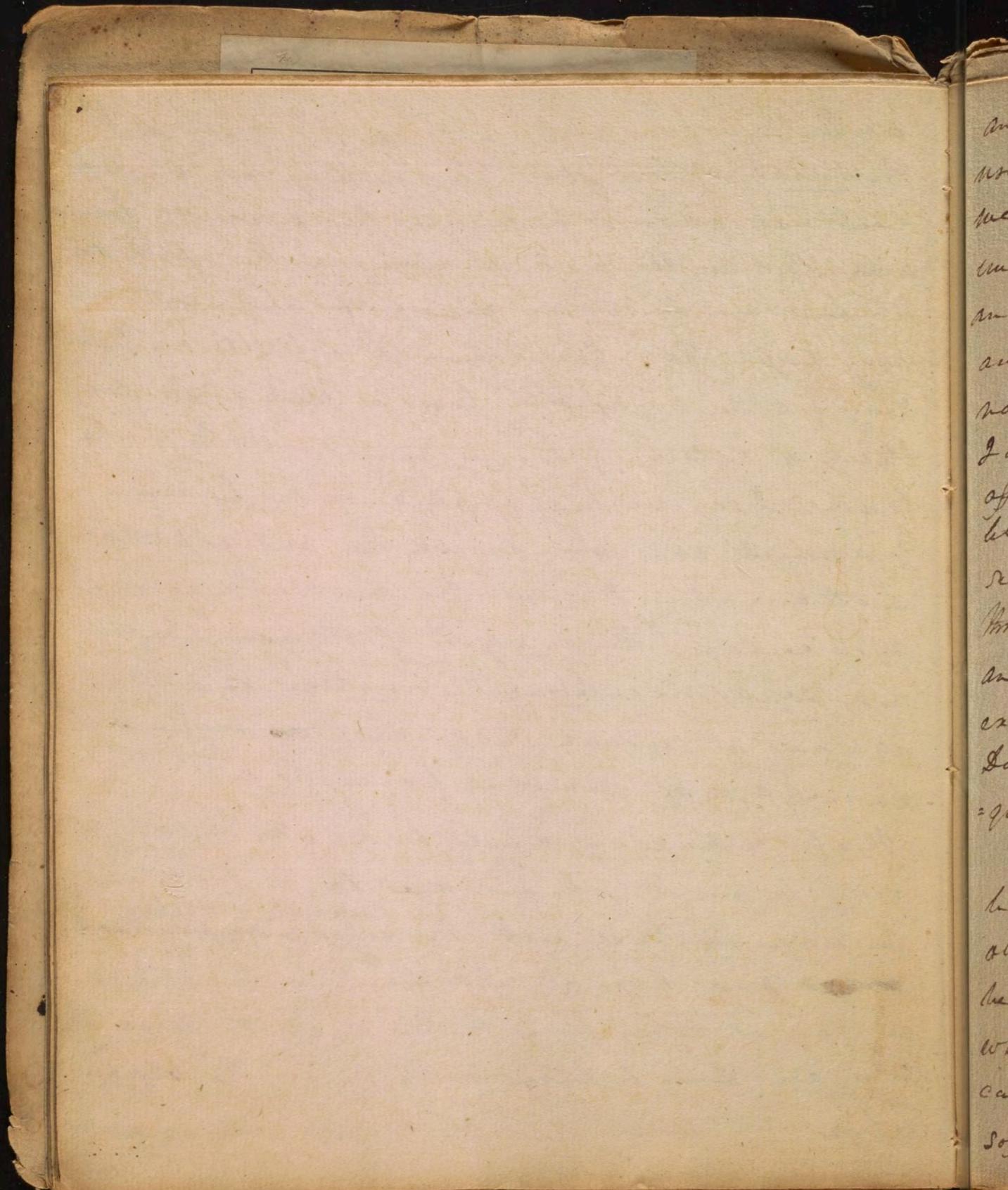
be a language to us. Anatomy then if I may¹¹
so speak is the hom book of Medicine; it is
addressed only to our senses and our memory and
is comprehensible by every one. It must be known,
as it describes those parts of the body at rest which
it is the afterwards the business of Physiology to ex-
-amine in motion. Unfortunately for Physiological
Inquiry, Anatomy can satisfy very few of its de-
mands - since most of the functions of the body
whose causes we desire to know are the effect
of the action of parts on each other, which
are beyond the power of the senses -

Some knowledge of Chemistry should also pre-
-cede our present pursuit - Chemistry exhibits the
effects ~~and~~ and investigates the cause, of the actions
of the minute particles of matter on each other, and
in this view should indeed be ^{the} preliminary of all
Physical science, as it is ~~by~~ ^{to} the properties of the
minute particle of matter that the effects of the
world must be ultimately traced. As a part
of material creation the human body then comes
under the investigation of Chemistry and you
know that the opinion has been defended, that

v. That to understand

all the functions of the body are the effects of ¹²
Chemical affinity alone. The knowledge we possess
does not allow us to decide the difficult ques-
tion. But as the causes of many of the effects in
the human body are more fully chemical, we
may hope that those causes which still are hidden
may yet be brought to bear a part in the sim-
plicity of nature, by being ranged under the same
head - I say we may hope, since no human
judgement can pronounce the anticipation
unattainable. However this question may end
it is certain ⁵ the analysis of animal fluids
and solids, secretion, Respiration and the
actions of several medicines ~~do~~ requires a
knowledge of chemical principles -

Materia Medica should be an other article of
your preparatory knowledge. By it I mean an
acquaintance with the ~~colours, smells, taste~~^{sensible qualities}
~~effects and~~
~~the pure doses~~ of medicines by an actual
display of them. It is to this strict Materia
Medica these lectures will refer. The places
where they grow, their methodical arrangement



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and the person who first discovered and used them, are subjects ^{with} which as physicians we have no immediate concern; they come under the view of the Geographer, the Botanist and the Biographer. I do not say that these ought not to be known, since I believe that nothing which can be learned can be useless. I only ask for it in its proper place. Nature affords confusion enough to our slender intellect but us not second her operation in our pursuit of knowledge, by adding obstructions, whence through human means they are evitable. - These are men of business in mental as well as bodily exertion. the modes in each are analogous. Do only what the end of your business requires and let the means be systematical.

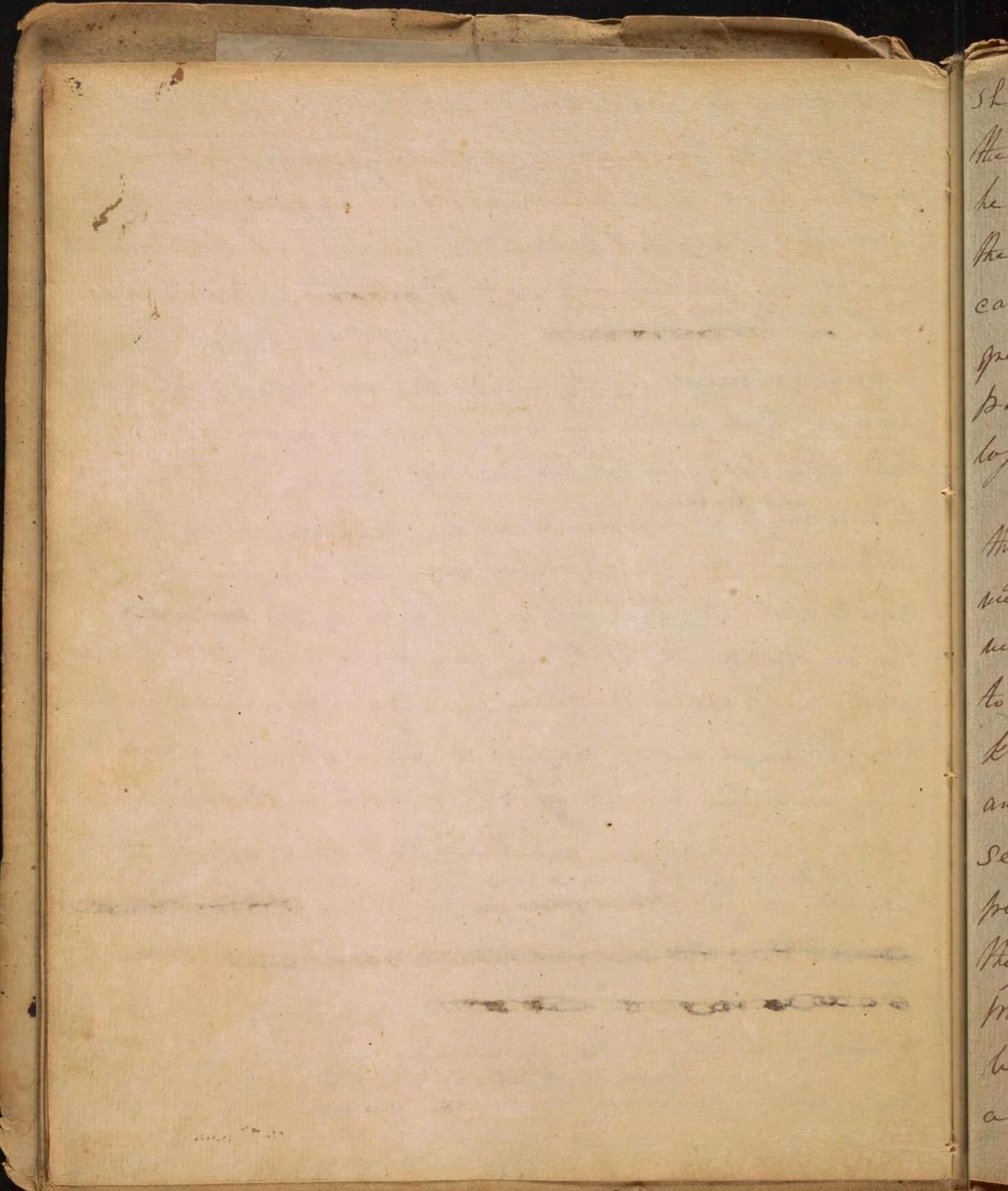
I have said that you should have some knowledge of the symptoms of diseases from actual observation. There are many ideas which cannot be conveyed by words. we think we ascribe them when we tell their resemblances. we may metaphorically ascribe a pulse by saying it is a tense or soft pulse, or that it is quick or frequent, But

a musical instrument.

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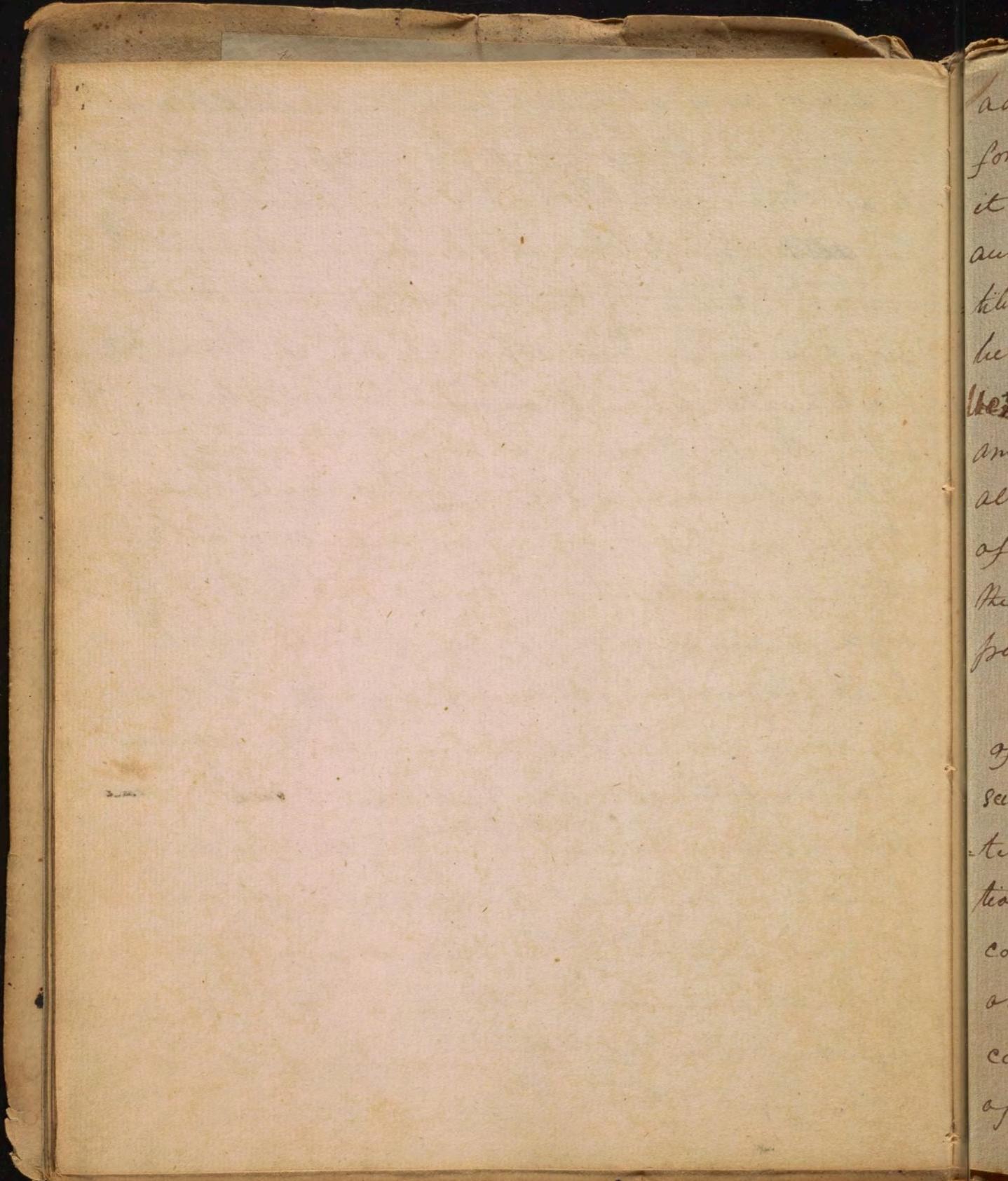
distinction by description will not enable us to recognize the differences when the fingers are applied to it - Was a mechanic ever taught his art by description alone? Would a library of volumes teach the art of playing ~~on~~ ^{the} piano, without exercise upon it - ~~or~~? Description and Rules would indeed shorten our labour, when joined with practice, But alone they would never accomplish their design - As in the art of handling there is a peculiar management of the muscles, so in the art of knowing the symptoms of disease there is a management of the senses, which is only to be ~~gained~~ ^{gained} by the employment of them. You will find these lectures more intelligible ~~before~~ if you are acquainted with the appearances of disease which are simple ideas that can only be heard ^{thru'} the Patient. - Those who have not had knowledge will have sufficient opportunity to gain it in the ~~Philadelphia~~ ^{Physician's} Hospital. ~~or~~

~~Philadelphia Hospital~~ - you will have occasion to see there the symptoms of disease and those institutions - both - practical and surgical instruction -



Should any of you be unacquainted with¹⁵
the subjects to which I have referred, you will
hear them with their best explanations from
the ~~best~~ professors of the University. And I
cannot count it too fortunate, that such
great aid is thus afforded me in those de-
partments, where I ~~would~~ ^{might} be utterly at a
loss to instruct -

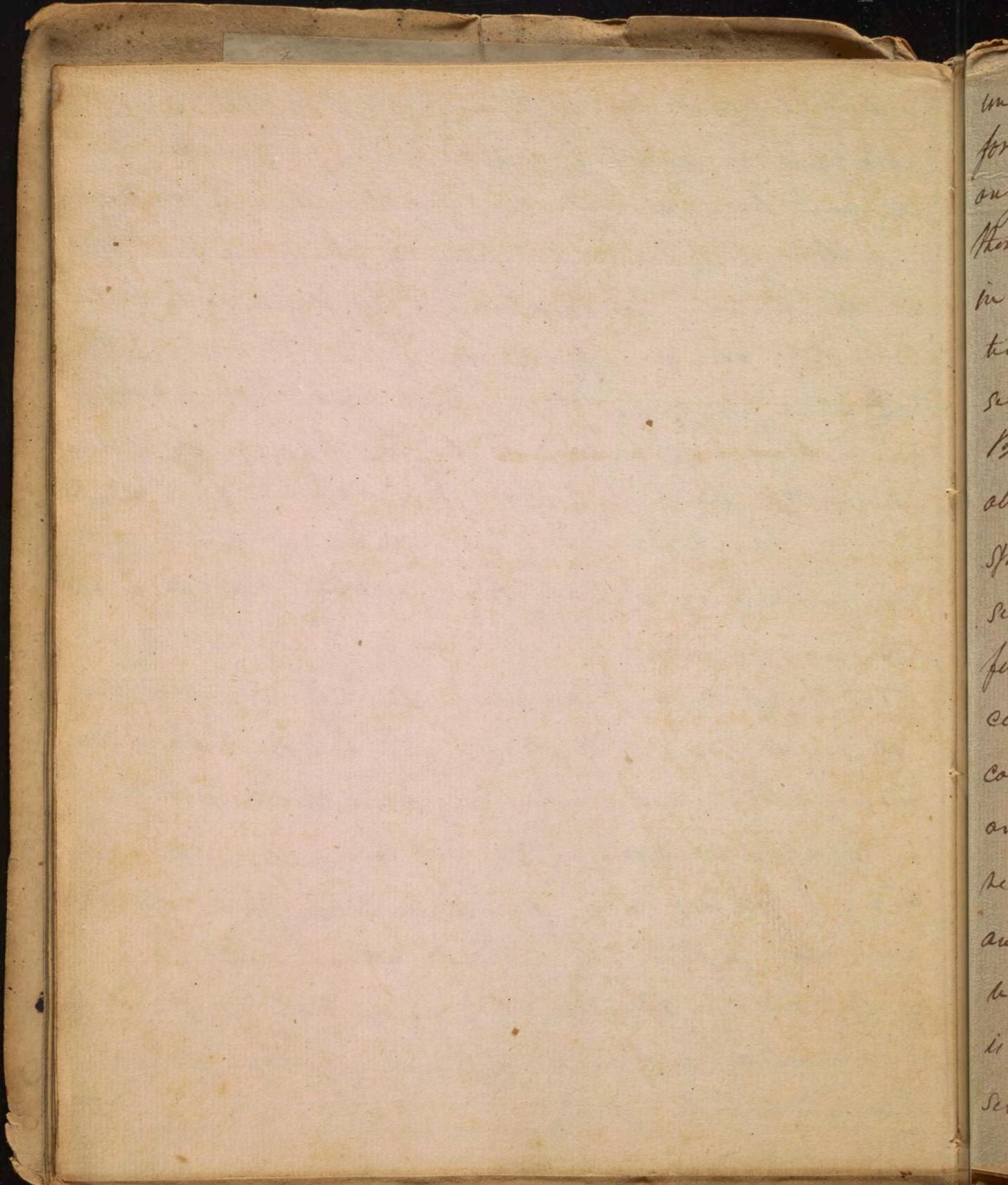
It will be necessary then that you know these
things, for the easier acquirement of what I
will read. When this is heard and learned, you
will have only a sight of that which ought
to be known. To be informed of what is
known in the world is both satisfactory
and useful, but at least it is ~~but~~ ^{only} a ~~secondary~~
^{condition} operation of the mind. The
pleasures of learning are delightful, but
they are selfish, the pleasure felt in im-
proving an art are those of the largest
benevolence, for the benefit extends to
all futurity. -- In learning we receive



advantages from those who were before us, and when we remain contented with it we live as of the world were to end with our times - The only way to show we feel gratitude to our ancestors, is by aiming to bestow benefits on our posterity -

~~They~~ will suppose then that your greatest ambition is to add to the knowledge we already possess - For the accomplishment of this ambition I will mention some of the modes of study that appear suited to the purpose -

The first employment, for the improvement of medicine, is that which has improved every science, the exercise of an attentive and enlightened observation - By an enlightened observation I mean one distinguished from that common notice of things which sees them only as individuals, and not as parts connected into one general system, whose operations it is the business of science to

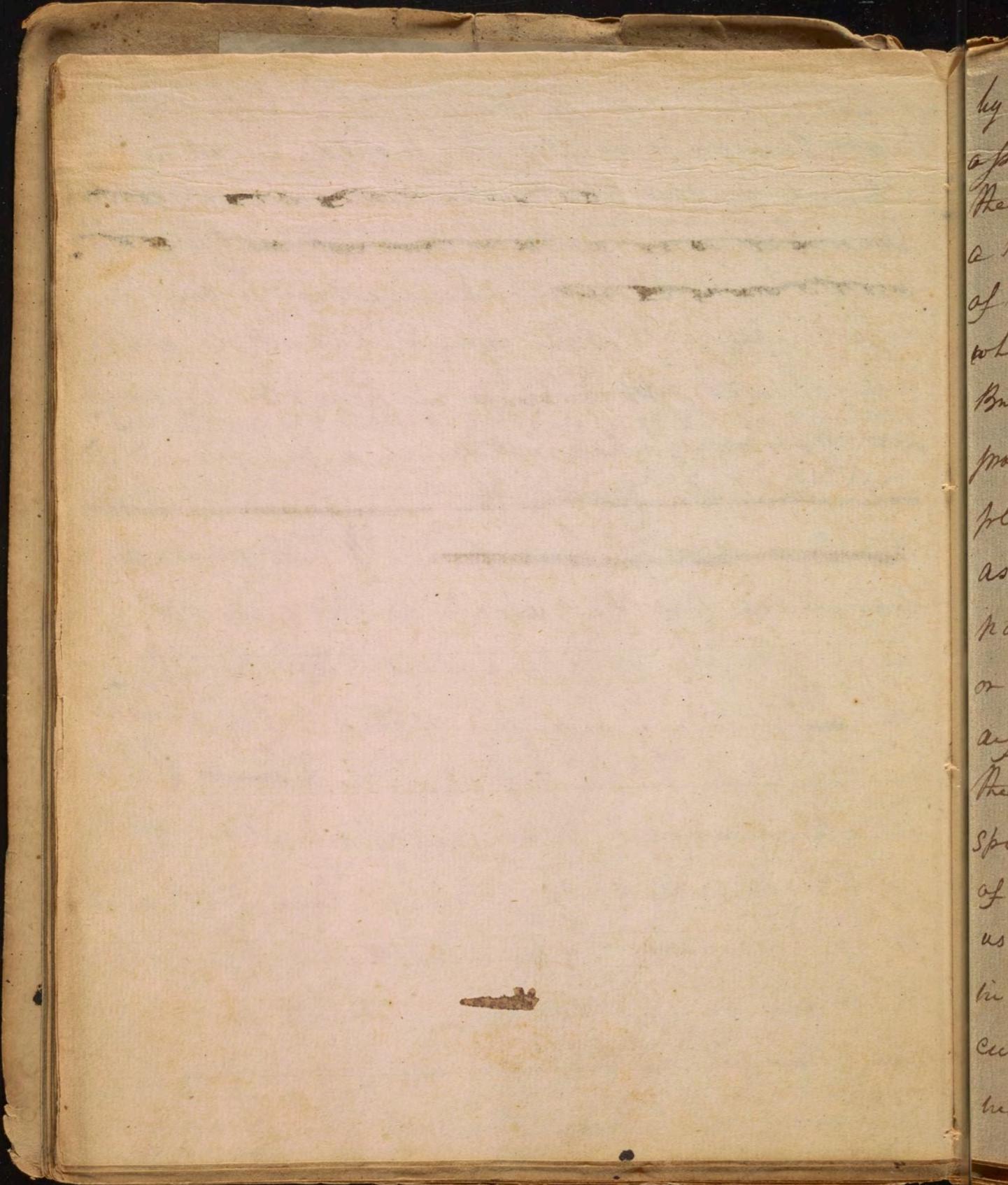


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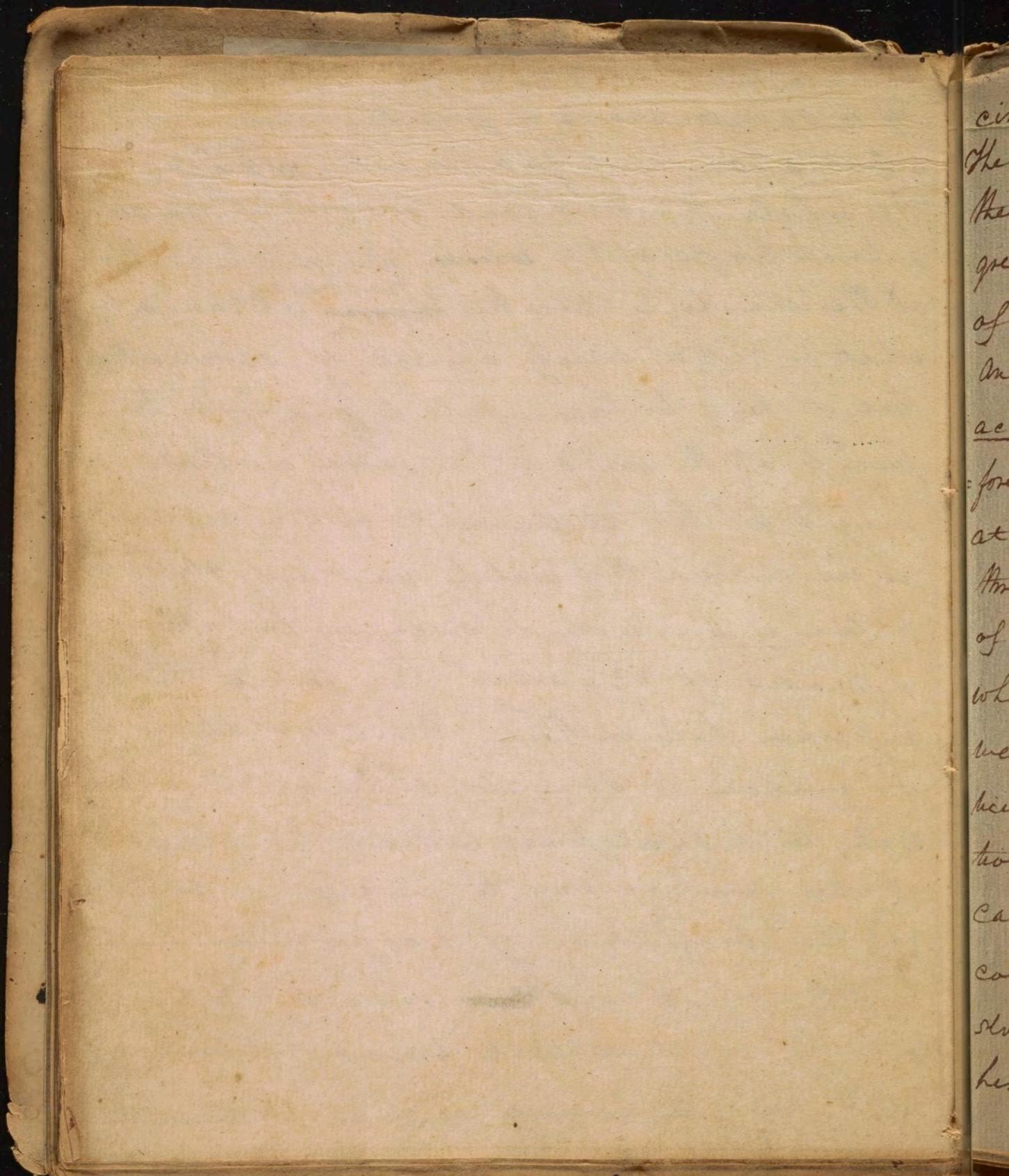
understand and to ascribe - The faculties
for this mere notice of things are the senses
only and are possessed by all mankind, But
these faculties never accomplished any thing
in Science - we are often told of the observa-
tion of the vulgar and this observation is
set against the speculations of the wise.
But ^{may start he} Brode ~~wrote~~ asserted that vulgar
observation is often defective than learned
speculation - whence come the multitude of
superstitions in Religion? whence come the
falsities of the causes of things that are
current ~~wrote~~ among the ignorant? whence
come the blunders in the mechanic arts, where
one man of enlightened observation will
rectify what has been practiced and passed
over by thousands? These are the fruits of
vulgar observation - If by observation
is meant the mere beholding of things by them
selves, then the brutes are our equals who -

v. Let us suppose you wished to observe
the mechanism of a watch, in order
to understand the causes and effects
of its motion

know a tree from a stone. The observation
that has improved the world, is of a
different nature. ~~without the least shadow of~~
~~knowledge or judgment~~ - Observation is considered
as a simple act of the senses, but it is more
complicated, ^{besides} ~~it employs~~ our perception & employs
our memory, association and judgment, ~~all~~
~~will illustrate this by the example of the~~
~~Mechanism of a watch.~~ - You first perceive the
balance or that part which contains the spring,
and note all its appearances, & retaining these
in ^{the} ~~my~~ memory, and proceeding to the fusee
or part on which the chain is ^{set} ~~bound~~, & note
its appearances. From an association of the
ideas furnished by each of these parts, and
a comparison of their relations, ^{you} conclude
that one cannot move without propelling
the other in a manner corresponding to the
connection between them. In this manner



by a successive act of perception from one
association and judgment, & pass over
the whole structure, and obtain at one view
a knowledge of the ~~whole~~ entire connection
of the machine - now this ^{you} ~~has been~~ obtained by
what is called merely an act of observation.
But it must be manifest to you that the
process of the mind is the same as that em-
ployed for the attainment of the sciences
as we observe the watch, we must observe
nature if we wish to discover her causes
or modes of operating. There is but this
difference between them, the observation of
the watch is conducted on one insulated
spot, in a short time, without the interference
of other mechanisms to mislead or distract
us - the observation of nature, is conducted
in different places ~~and~~ under different cir-
cumstances, at instant porious of time, and
with the interposing of many irrelevant



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circumstances to weaken our attention.
The mode is the same in each case, only
the observation of Nature requires the
greater act of memory, the stronger act
of association, and a clearer judgement.
An effective observation consists not only in an
accurate attention to the things that pass be-
fore us, but also in an attention to many things
at the same time, or if that be impossible
thro' the limitation of our minds, to a number
of things in such rapid succession, that the
whole view appears as instantaneous as if it
were done at one time. It is by this collective
view that we gain a knowledge of the opera-
tions of Nature, or in other words, of the
causes of things. If we see the parts of a
complicated machine in separation or
slow succession, it is impossible to compre-
hend it, But if it be arranged before

These remarks will receive exemplification or proof, from an attention to some of the departments of our knowledge. The certainty of the sciences of arithmetic and geometry, is derived from all the circumstances that lead to the truth of their calculations or measurements, being at the moment of conclusion within the scope of the sensori memory whereas other subjects which do not admit of this advantage

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as so that all its parts are exhibited at once & is easily understood. The same is true of the works of nature which are the operations of a great and complicated machine. By studying them separately, they may be known as individuals, but we can not tell how they affect each other, & it is by bringing the parts together by a comprehensive observation, that we are able to discover their causes. — This idea will be ^{further} elucidated by what I would observe with reverence. The Deity by the possession of infinite senses perceives every thing. Sound, motion and form can not be so infinitely diminished that his senses by a parallel infinity can not overtake them. But knowledge from these sources alone, would not be omnipotence, there is in ~~him~~ ^{to him} a power to see all things at once, I would call

of having all their facts brought at once within the field of observation are still perplexed with error or obscurity. How many vain theories of the tides prevailed, before an observation of the phenomena of the waters in all parts of the earth established our present system on that subject. What a mite of medical truth is mix'd with its mass of error and uncertainty, from the impossibility of obtaining at one view the whole of the functions of the human body in health and disease. The uncertainty of predictions in meteorology flows from

This attribute the greatest if it did not rank among perfections, since in man earthly the faint image of the Deity it is the strongest characteristic of mental distinction. It is ~~the~~^{perhaps} one of the secrets of the genius of Shakspeare and Bacon. They never saw things by themselves. - This attribute of airiness is the fountain of his omniscience, by placing at one view before him all the operations of creation; and a man in a humble library, gains knowledge and consequently a power over all the little spheres he studies, by an observation that concretes into one view, a number of the parts of which that sphere is composed. - The labours of genius are a constant endeavour to approach towards ~~the~~^{the} perfection of this aggregating faculty. It will however never be reached by man, from the absolute necessity he is under of considering things in succession. One use of his memory

the limitation of our observation of
the phenomena of the weather to
a few places, ~~and in these places~~
~~from~~ and from the aburvation of
these phenomena ~~of late years~~ being
made in those places, in successive
years more than by comparing the
observations with the effects that
are occurring at the same moment
on all the other parts of the earth
but records of these successive
observations have been accumulated
by Naturalists, without
advancing their knowledge
much beyond that of an or-
dinary and unphilosophical observer.

is as a substitute for this faculty. It ²³ brings before his eye whilst viewing one object those he has seen before, and thus gives the faculty of ~~know~~ beholding many things at once, which in the Deity is a single act of perception - The more numerous the objects are that are thus brought up by the memory and the more intimately they are related the ~~more~~ greater will be the power ~~of~~ to discover the operations and causes of nature -

It is observation conducted on these principles which must improve our art. First to see precisely all the individuals that come before us, and secondly to estimate the habit of collecting into one view the greatest number of these individuals.

If a number of men such as
Savigne were stationed ^{at the same time} over the
earth to mark the courses and
nature of the winds and clouds
more truth and practical prediction
would be obtained from the
comparison of their simultaneous
observations than could result
from the strictest diary kept by
any one of them through suc-
cessive years to the end of time -

To derive benefit from this observation²⁴
we must be diligent in the use of it.
To stand and note only the things that pass
by, will limit our knowledge to a few and
accidental objects. The metaphor applied to
the means of acquiring science is walks.
Its seats are only those places where a ~~long~~
~~time~~ of ~~desertious~~ ^{steady and} traveller has deposited
~~its~~ ^{and sand to obtain} collections. The common course of
walking makes gain in all its aspects
the result of an mysterious pursuit
of it, shall the man who washes whole hills
of clay ~~to find~~ one little diamond point,
and shall not they who aspire the truths
of science, give from their higher im-
portance, a greater degree of attention
and industry for their acquisition.
Shall they alive any that which

V^e a case of illustration will shew
that it is little more than the
philosophic observation, considered
under the last head. —

is the price of every thing worth 25
pappaing in Labour. — That mind
will be a meagre one that is fed like
the animals fix'd to the rock which
sparingly receive their nourishment, by
the flowing of the tide upon them, The
mind that would be active and vigorous,
must be nourished like the Eagle, by
a settled and a perceiving Search. —

The proper employment of our reason-
ing faculty - is an other mean for our ad-
vancement in the study and improvement
of medicine. From what I have said in
our last tract of observation you must
perceive that it includes the act of rea-
soning. Reasoning consists in marshaling our thoughts
and ~~the~~ ^{V.} deciding upon their agreement or
differences. ~~possible state~~ ~~and~~ ~~the~~ ~~you~~
~~now~~ ~~it is~~ ~~better~~ ~~than~~ ~~observation~~

First it was a truth established by ob-
servation that the symptoms of inflam-
matory fever were, a tense pulse, a dry skin
third, a diminution of many secretions
and occasionally an effusion of fluid on
the surface of the skin in the form of perspira-
tion - it was known too that inflammato-
ry action in the blood vessels sometimes produced
fluids below the skin as in burns and scarlet
fever. - It was further observed that this
inflammatory fever was relieved by ad-
apting remedies. - Now it was also ob-
served that many dropsical patients, had
this same tense pulse, dry skin, third, and
diminution of many secretions, it was fur-
ther seen that there was an extensive
effusion of fluids below the skin of
the limbs, and on the surface of the

Let us suppose that reasoning ~~first~~^{led} to the use of applying remedies in Arapogy. ~~This~~ ^{is} ~~the~~ ^{method} of ~~treating~~ ^{treating} ~~it~~ ^{it}. Find it was a truth established that inflammatory fluids required depletion. An observation of a droppic patient, showed that there was a loss of pulse, a dry skin, thirst and a diminution of many secretions. It was further observed that a retention of fluids was the result of some inflammatory actions as in burns and scalds. It was known too that many inflammatory fluids terminated in the effusion of water on the skin in sweating and perspiration, and the fluid produced in arapogy was no effusion of water into the cellular membrane and on internal surfaces. It was known if it may be true that the application of heat increased perspiration. Now all these phenomena of arapogy being observed, they were compared

~~surface of the~~ cavities of the body -
constituting in those cavities, if I might
so speak a kind of internal perspiration.

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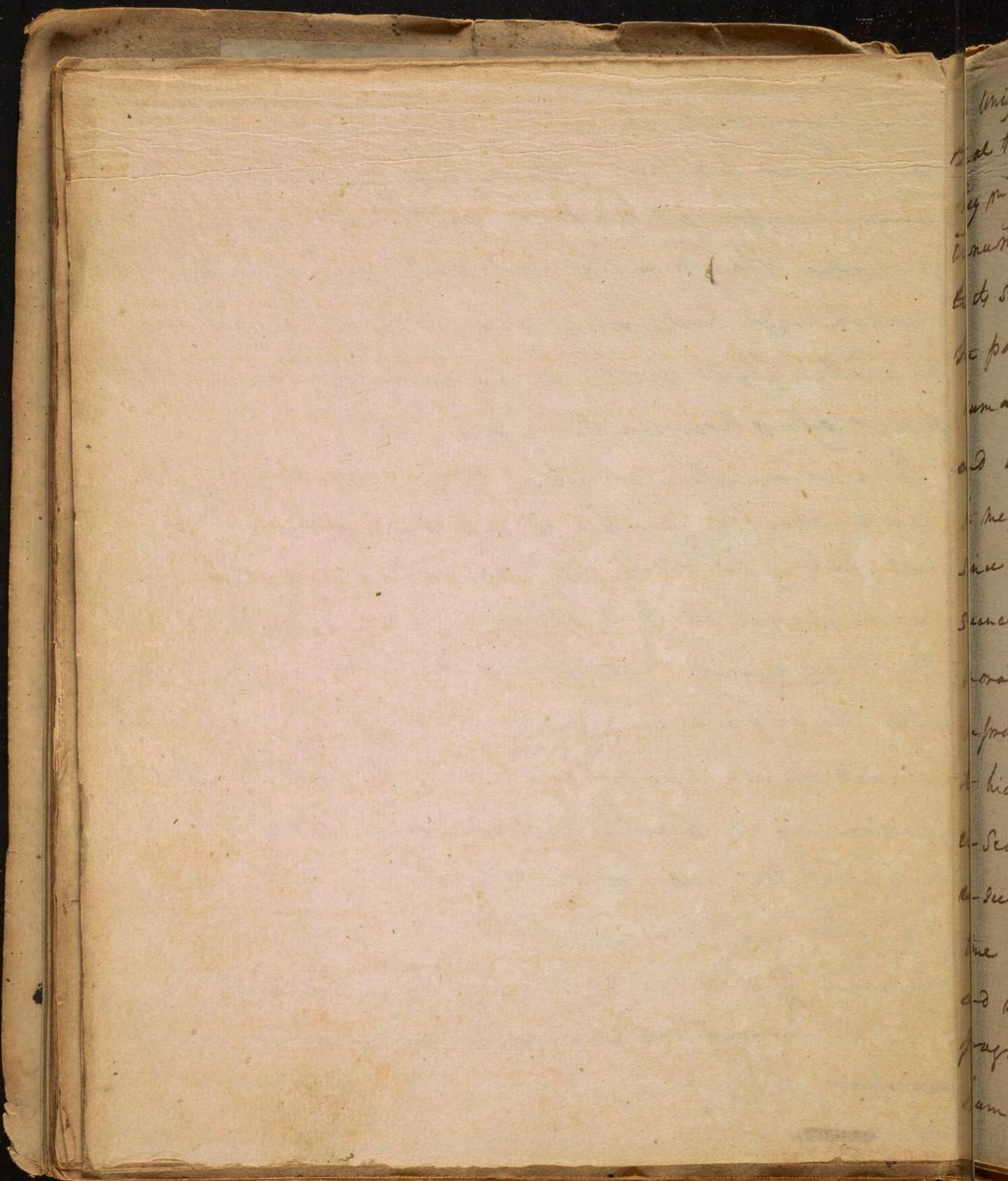
with the phenomena of inflammatory fever.
and the coincidence being so extreme, it
was presumed that the agreement was uni-
versal, and that the state of the system
would also resemble each other in the effects
produced by one remedy upon them. The
aphelin therefore which had been found
beneficial in inflammatory fever, was
used for dropsy, and the result was a cure
of the disease. Now this conclusion was an
act of reasoning, but you see how much
of the process, by which the truth was at-
tained was a mere observation of the his-
toric phenomena of the cases. - The reason-
ing here illustrated is by analogy, or from
a resemblance in most particulars of two
objects inferring a resemblance in all, and
it is the only ~~method~~ ^{Made} of reasoning
we have for the acquisition ^{of the greatest part} of medical
truth; indeed I might extend it further

v. Perhaps it ought not to be said that
theories should be universally rejected —

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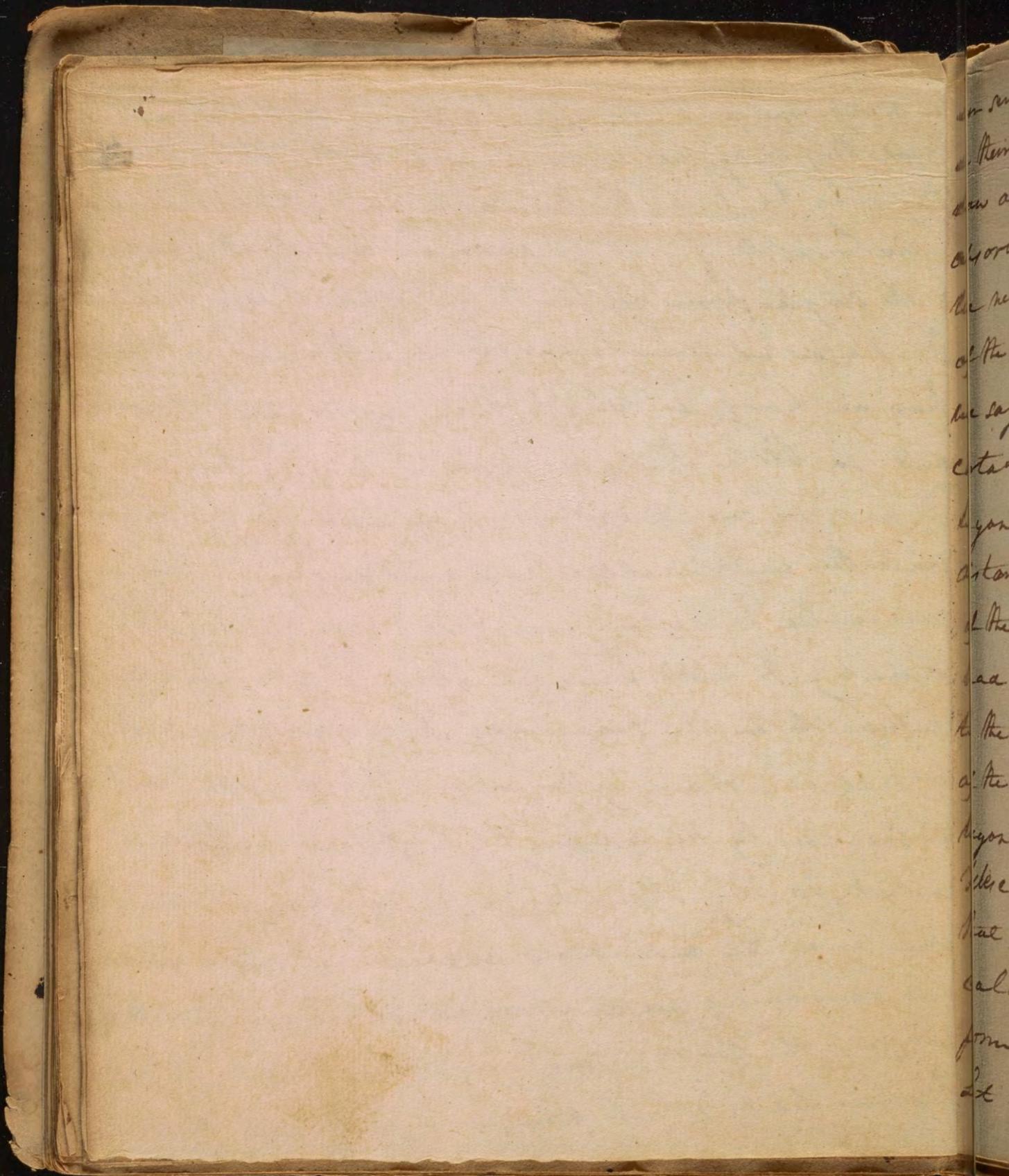
and say that it is the only mode where
the senses do not serve us, of obtaining
knowledge of nature whether physical or
moral. The mathematical process is called
reasoning, but any one who will analyse
it will find that it is only a connected
series of observations -

There is another exercise of the mind which ^{is} arran-
ged under the head of reasoning but which does
not belong to ^{the} order of that reasoning which is to
be employed for the attainment of truth. I mean
the Theorizing that forms the greatest part of
all medical enquiry. Theories are generally
founded on ^{or contain} suppositions. From these premises the
reasoning is mostly consistent and correct, and
perhaps the best examples of apt and logical
Ratiocine are to be found in the theories that have
amused the world. The error is only in the
assent. ~~I will not say that there is not to be~~
~~suspicion~~ They may be true, and after observation
has ~~at~~ ^{Sometimes} proved them to be so. But as truth



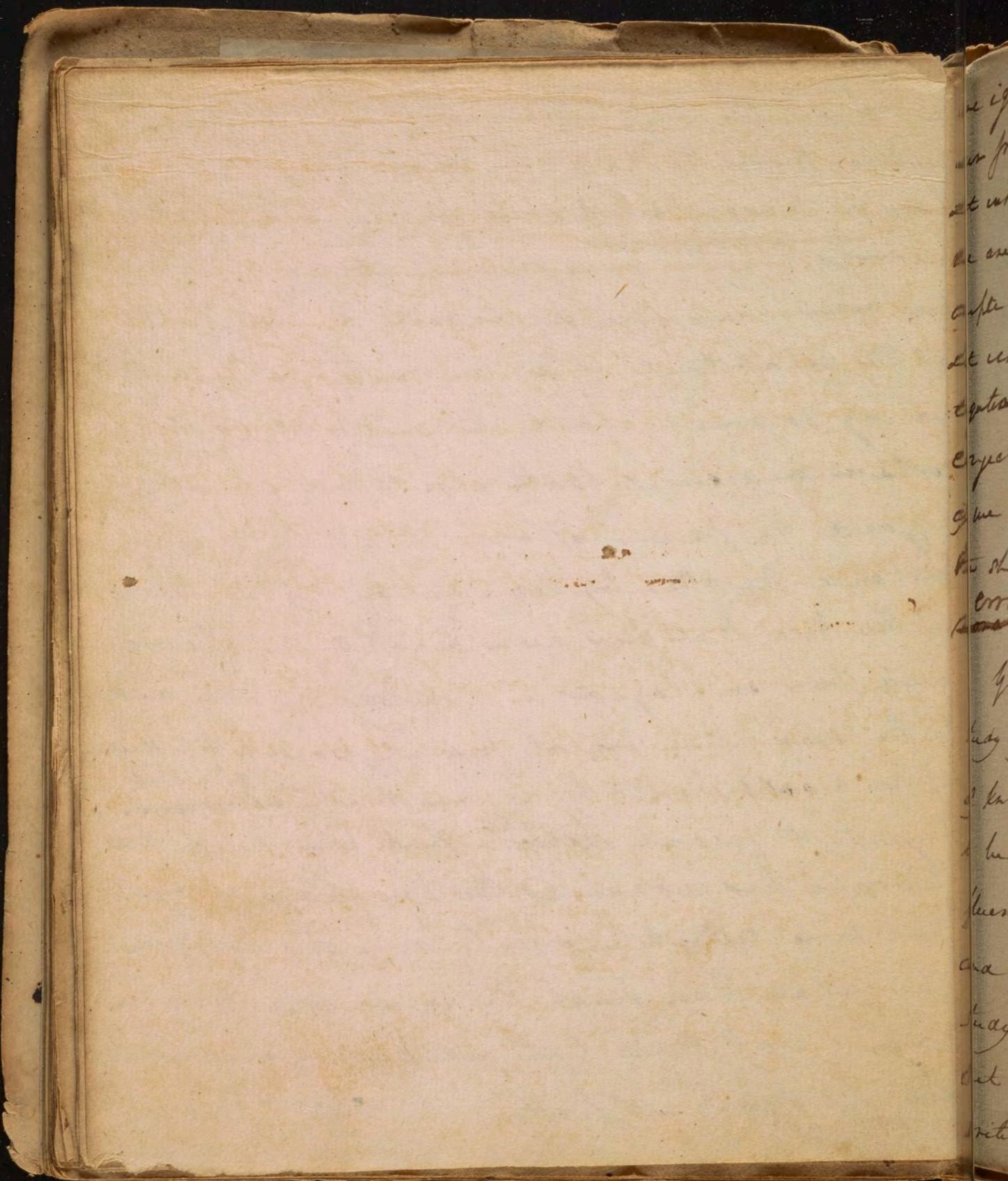
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is uniform, and error multiform. The chance
that they may be erroneous is to the chance ~~that~~
They may be true, in the same proportion that the
enumerable forms of error on a subject bear
to its single form of truth. - Theories have crowded
the pages of medicine, because there is in the
human body so much that we want to know
and so little that we can know. We feel ashamed
to meet the world with the confession of ignorance
since this unfortunately is considered as great a sin in
science, as the commission of any vice against
morality. In both cases we attempt to obviate
reproach in the same way. In morality we seek
to hide our shame by the artifice of denial, and
in science by the cunning lie of theory. But if
we seek for any other remedy for ignorance than
time and the industrious exercise of observation
and reasoning we delude ourselves and stop the
progress of truth. There are some things in the
human body which can never be known, whilst



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our senses, the only testimony of truth, remain
in their present state. we shall never know
how a muscle contracts, how a lymphatic
absorbs, how the nerves move, till we see them
we never conjecture or dispute about the form
of the inhabitants of the moon, then why should
we say so much about the modes opérantes of
certain machines. Both objects are equally
beyond the power of our senses, the one by
distance the other by diminution. If one tenth
of the time that has been wasted in theorizing
had been employed in inventing greater aids
to the senses than we at present possess the science
of the world would have been much ~~extended~~
beyond its present ~~limits~~. Think how much the
telescope has advanced the knowledge of objects
that were distant and unknown and we can
calculate how much the microscope may in-
form us of those that are minute and unknown.
Let us then not hesitate to confess that we



are ignorant of those things, which with 31
our present powers we ~~cannot~~ ^{cannot} ~~but~~ know.
Let us exercise our minds on those things
we are capable of ascertaining, and they are
ample enough for the longest life of labour.
Let us seek to improve our senses for the inves-
tigation ^{of what} we do not know and by ceasing to
conjecture where we are not certain, let us try
if we cannot remove that rule which makes
the shame ^{ignorance} ~~of error~~ ^{greater} than the shame of
~~error~~ ⁱⁿ
~~mistake~~

You will receive ~~much~~ ^{some} advantage in the
study of Medicine by the cultivation of other branches
of knowledge, which at first sight do not seem
to be connected with it. There are remote ⁱⁿ
fluences in sciences as well as in ^{the world} ~~physick~~,
and among these ~~is~~ the instance that the
study of one branch has on all others. I once
met with a sentiment in a distinguished
writer and advocate for literature, that from

⑤ The profound general reasonings
of Hume --

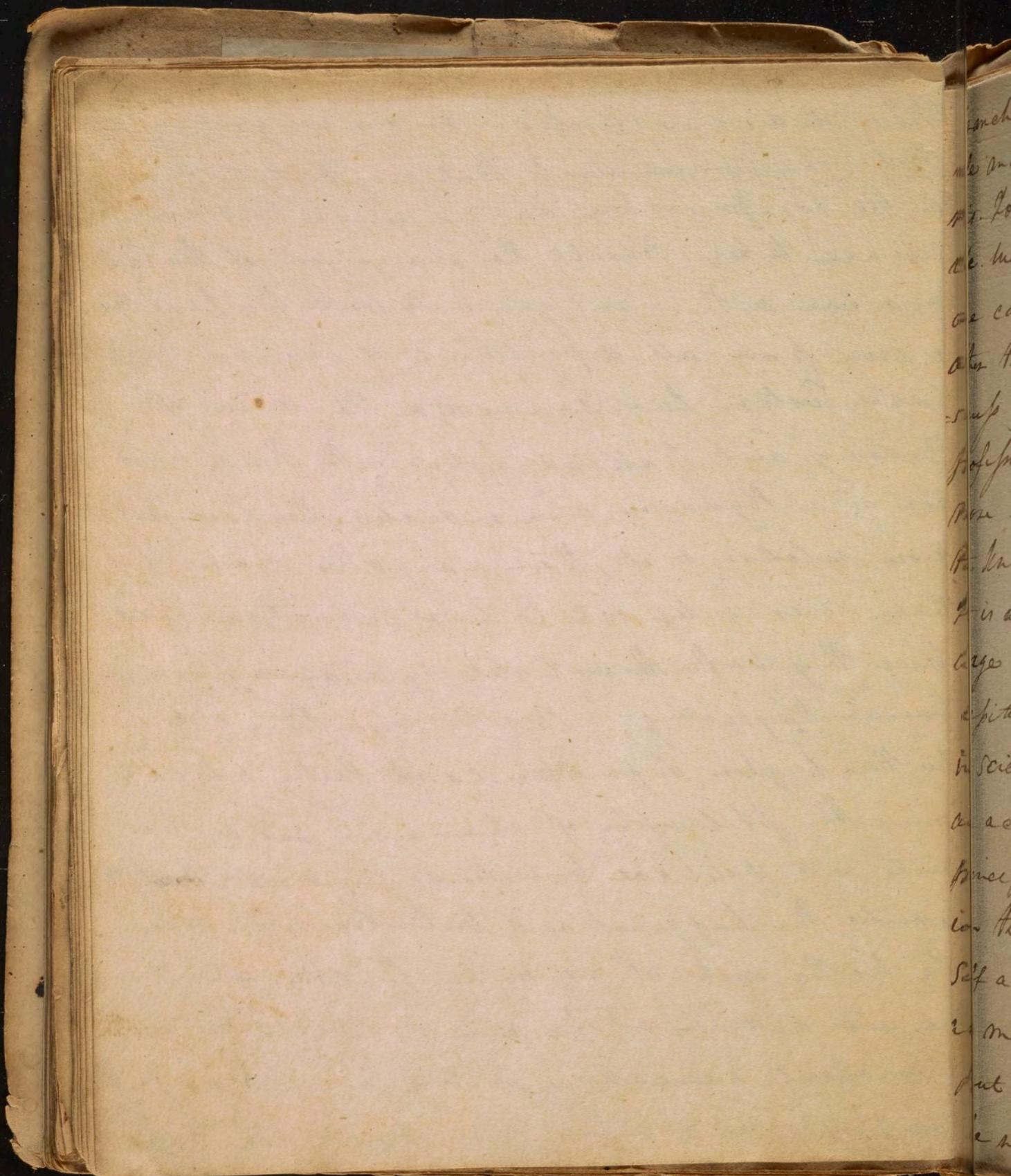
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The extensive and secret operation of Moral causes, he would not say a Chinese Mandar
sin was not a better man because Milton
had written his Paradise Lost. The sentiment
is ~~so~~ extravagant, but it contains as much on
these as his opinion does, some foundation, and
the analogy of the extensive physical effects
that often arise from apparently small causes
warns us to be cautious in limiting its truth.

with a similar view to the indirect influences
of studies upon our mind, I believe that ^{all} other
things being equal he will be a better physician
who has received the mental benefit of studying
who is acquainted with Smith's wealth of na-
~~S. Hospital and Society of Friends~~
tions and Shakespeare's plays. - I know quite
well ~~that~~ this is not a popular doctrine.
Physicians are often shamed because they
are nothing but Physicians. Strange! that
we should be allowed to join with our
professor ^{sordid and vulgar} the art of making our fortunes
and not ^{rare and noble} the art of making our minds.

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These studies are beneficial in two ways. —
First. They furnish facts that may find a place
in the comprehensive range which medical
science takes. Consult the observations of the best
medical authors and you will find they have been
drawn from all departments of human knowl-
edge. Custom has connected the studies of
Botany and Natural history with the educa-
tion of a Physician, when in reality they have not
more relation to it, than many other branches
that never enter into College instruction. This
is true they both throw light by analogy on
human Physiology. But the same thing is done
by the higher departments of Poetry which
gives the philosophy of character, and by the
civil and political histories of the world. ~~which~~
describe the happiness and turbulence of men
they both instruct us in the healthy and dis-
sorded actions of his mind and passions.
If medical education were to receive its full
complement of aid from other knowledge, no one



34

branch would be omitted. But the term of life and the limitation of intellect must prevent this. To a certain extent however it is practicable. We know that all science has two departments one consisting of the general principles, and the other the detail. To learn the detail is the business of a life, and must be confined to the professional man. But the general principles are more easily obtained and may form part of the knowledge of every industrious student. It is a happy adoption of the nature of knowledge to our finite capacities, that as our receptivity confine us to the detail of one pursuit in science, we have yet an opportunity to gain an acquaintance with others thro' their general principles. I therefore say study your own profession thoroughly and in detail and make yourself acquainted with the general principle of as many others, as your situation will allow. But secondly an advantage will not only be received in the facts furnished by other branches

for a genius for a particular pursuit -

I want time only to make it -

"For intellect is but the mirror of nature, and cultivates knowledge, but our mode of holding the same - therefore we make mind by knowledge & know the mind."

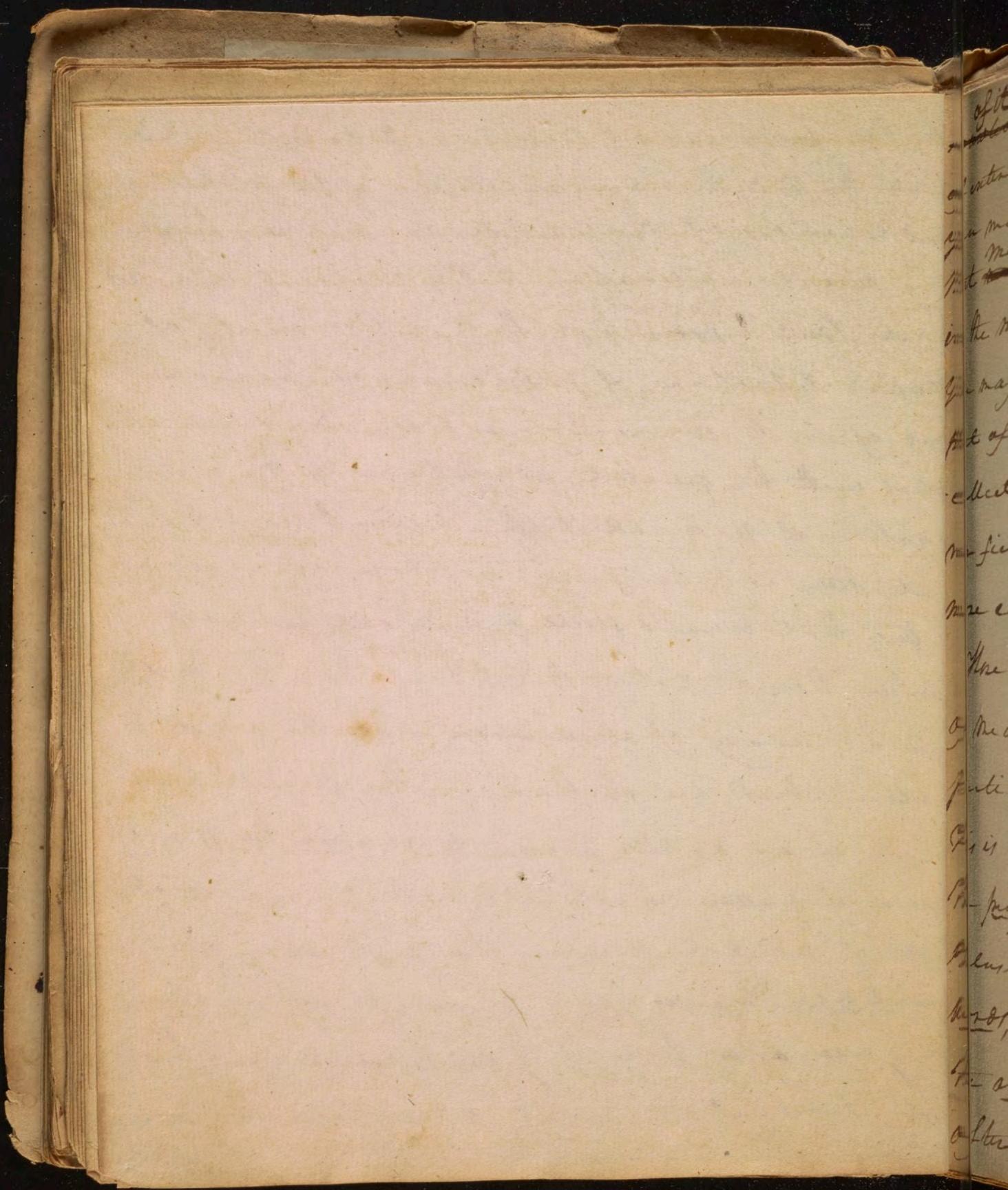
of Sciences. A greater benefit will be derived 35
from the improvement your mind will receive
in the pursuit of them. The process of the mind in
the acquisition of all kinds of knowledge is the
same. The same instruments Perception, Memory, ap-
prehension and Judgment ~~are~~ are employed in all sciences.
By the employment of these instruments in one
we acquire a more dexterous management of them
for others. 'Tis true some ~~of~~ branches are more easily
attained than others; and we sometimes observe
~~that~~^a limitation of intellect which is called a pe-
culiarity of talent ~~or~~ ^{but we ought to} consider ~~as~~ rather
as a deficiency of ^{the} mental powers which have a
dominion over only a part of nature. A real
Master mind ^{is} capable of every thing. Since then
a finished intellect is fit for enterprise in all de-
partments. we shan't try by a kind of inverse
operation to produce a finished intellect by the
cultivation, as far as is practicable of every
department. To apply this ~~wise~~ principle we

v. The successive steps of knowledge are made
upon a multiplying ratio -

K.
Jen.

36

to the purposes of Medicine. I do not see
that the Mathematical studies of the properties
and relations of magnitude and number, have
any direct application to the treatment of a dis-
ease. But I ^{am convinced} ~~know~~ that the habit & exercise of
precise definition, of perspicuous comparisons,
and of strict connection and conclusion, is ap-
plied with the greatest advantage to the inves-
tigation of medical truth. again I do not know
that there is to be found in Thomsons Seasons
a line that would serve a medical purpose
further than a motto. But I know that the nicely
and accuracy of observation of all the objects of
nature which are embraced by the subject, may
create in us a like power to observe the phe-
nomena of nature as exhibited in the immediate ob-
jects of medical science. The cultivation of other
knowledge besides your proper profession should
be your aim then if you have placed high
your hopes of medical distinction. The more



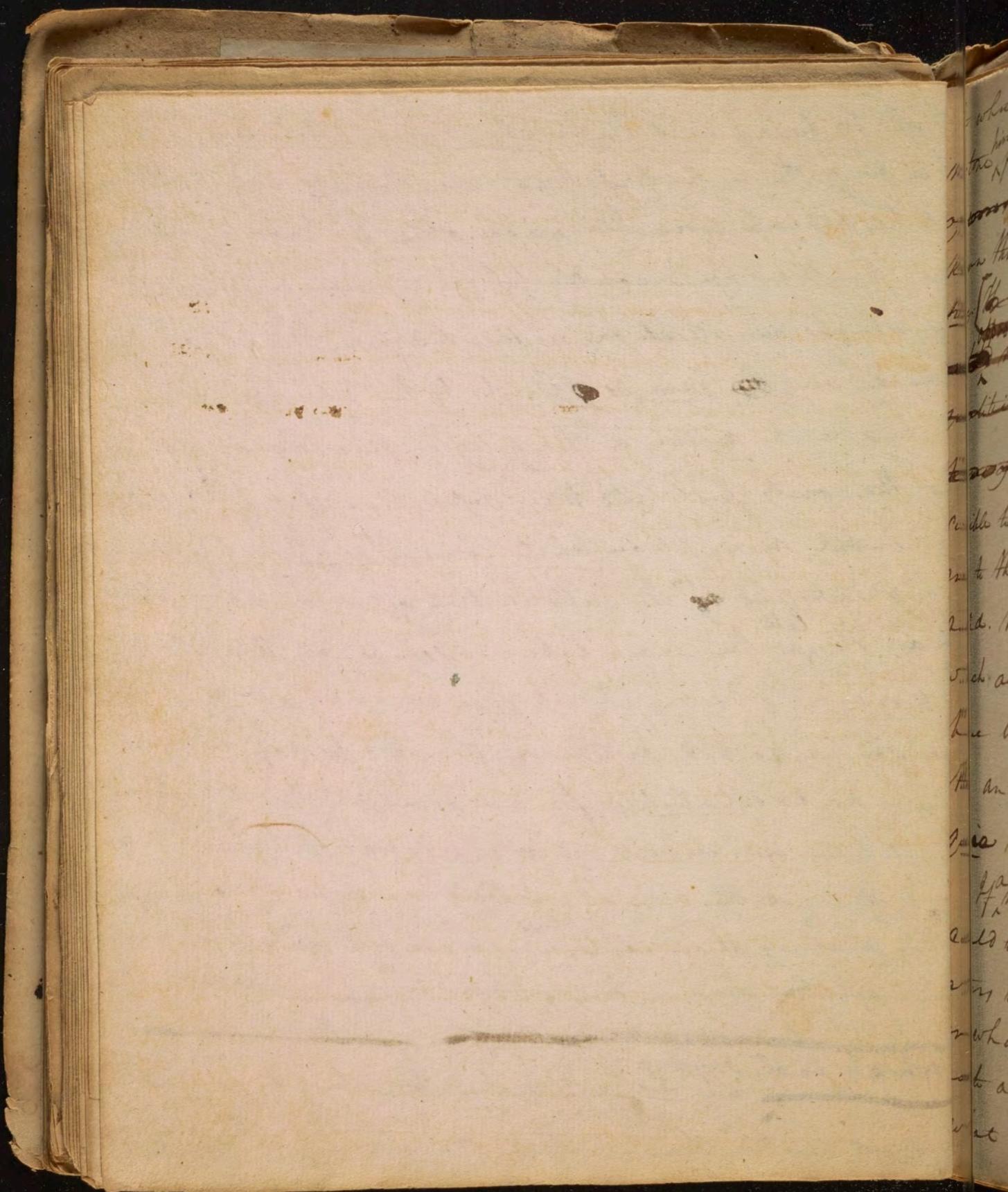
~~of it~~
~~knowledge~~ is gained the more is the capacity 37
of extending it increased. and tho' a survey of what
you may thus accomplish, may discover some branch
that ~~may~~ remain unexplored. it has rendered at benefit
in the mental exercise by which it was obtained.
you may deplore your time as lost because the
fruit of it is not immediately produced, but re-
collect it is like the top in the fallow of a sum-
mer field, which renders succeeding cultivation
more easy and ^{productive} successful. -

There is an evil which mars the investigation
of Medical Science against which we must
particularly guard. I mean Prejudice -
This is a mental deception and is of two kinds
The prejudice of words and prejudgment. Every
Philosopher complains of the abstraction that
words, or if the evils be not applied to them,
the abuse of words offers to the inquiry
after truth. - words are an injury made

v. in our enquiry after truth by -

v. The proposition is then reduced to this

First by being and Metaphorically, then by 38
leading to a belief that two things are entirely
alike, which resemble each other perhaps in but
one particular. Secondly by giving rise to Abstraction
by which our attention is diverted from things and
fixed on ~~the~~ ^{sounds} Thirdly by the attempt which
is made to define a thing by a few words. where
as, the only just and true definition of a thing is
the entire description of it. and Fourthly by our
being satisfied ^{of} ~~with~~ the substitution of a word for an
idea. This is the most copious course of the adoption
of words in the world. I will give an example of it.
We say we do not restore a dead person because
there is no excutability for our sense to act upon.
This satisfies our inquiries, but excitability is here only a
word, it is not the sign of any thing our sense know; which
is the meaning of an idea, ^{so} we do not restore him because
there is not that thing in him, by which he may be restored
~~So I mean that we do not restore him because there is no~~
~~thing in him by which he may be restored~~
~~which is only saying~~
~~we do not restore him because we~~
~~cannot restore him~~. so that the whole is reduced



to what Philosophy ^{hers} should only say. ~~we can't~~ 39
not ^{him} for this is a truth. — There are the deceptions
of ~~words~~ language that we must avoid if we wish to
know things as they are, which is the aim of true Philoso-
phy. ~~[This seems to suggest that by giving a man~~
~~oppositions~~
~~—~~ ~~name we are often blind to some~~ ~~contradict~~
~~reality he may properly apply by analogy to the~~
~~name of things.] By these ^{delusions} we are often made insen-
sible to the differences of things that words have joined,
and to the resemblance of things that words have sepa-
rated. Nay instances are not wanting in science, in
which our ideas have been misled by words that
have been given by the rule of contraries, as
the ancients gave the name to the asterism "Parco
quæ non Parcunt"~~

If men were only to observe and think, and
could ~~they~~ at the same time receive the knowledge of
others without the communication of language
or what would be the same, could he live so long
as to acquire by his single observation and thinking
what he demands of others, for the want of time,

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There is no calculating how much sooner he 40
would arrive at the point of knowledge allotted to
man, than would be reached by any number of
men magnifying by the imperfect and falacious
aid of words. Perhaps I may be considered as
fanciful, and I utter it only as a fancy when I
say that brates on this principle do ~~possess~~ more
accurate knowledge of the objects that come before
their senses, by observing them themselves, than if the same
knowledge had been derived by a language, from
their species. - May I ask two if some of those acute
perceptions and conclusions which we call their
instincts, are not the effect of the dumb study they make
of the objects that concern them. - A sect of ancient
Philosophers enjoined the keeping a term of si-
lence on their novices. an Institute as worthy
the wisdom of Pythagoras. which limiting their
employment to observing and recording, gave
them juster notions of the realities of things.
But - a greater evil is done to science, by the pre-
-judice of magists. By prejudice in judgment

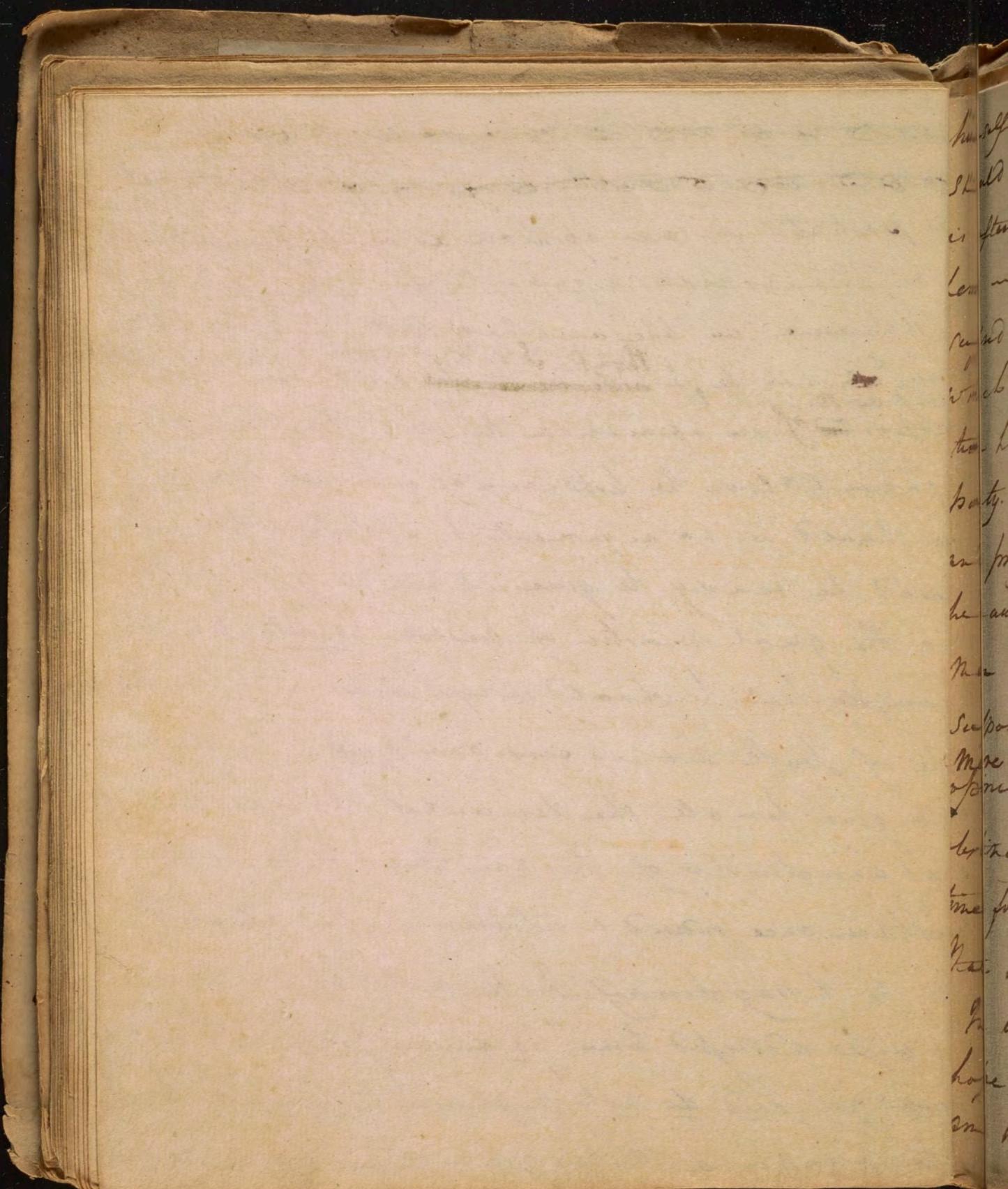
fallow
r. ~~Leave~~ it with all our pride -

I do not mean belief without ~~satisfactory~~⁴¹
~~sufficient~~ argument. since this is a relative and variable thing. as no one ever has
lived a thing without satisfactory reason to himself. By prejudice I mean opinion formed
without appropriate ~~sufficient~~ argument. Thus
if I reject an enemies opinion because he ~~has~~
~~injured me~~ ~~opposed me~~ It is using an unappropriate argument.
since my feeling the injury has no more connection
with his opinion than it has with the language
he speaks. we are inclined into supposing them
related by both of them attacking to the same
person. - ~~The opinion of my enemy~~ - we are how
ever not only to guard against the prejudices
we have from envy or dislike toward
others. But we must carefully to avoid a larger
clap that results from a loss of ourselves. when
we have adopted an opinion, we consider
it as part of ourselves, and we ~~are attached to it~~
^{* we adopted}
~~so strongly and so firmly that it occupies the body~~

v. This made of ~~opposite~~ reasoning

~~society of men for mutual weal~~
~~abstain from all forms of the state~~

This partially for our opinion is a prejudice - it
is an inappropriate argument, & is like our opini-
on because we like ourselves. But however John
cavⁿ may be, I ^{I think I may} ~~make~~ ^{been} apt that it has no
support of those opinion in the world than any other
argument, even the testimony of a sense. This self-
love should be no argument to a Philosopher. He
should be ready to give up not only his opinion
but the great master of wisdom Socrates, set the
example that he should resign his life also for the
sake of Truth. Let us consider Butta Tyrant
and give her all she demands. - It is so told
so characteristic of Fou aul time the a Scottish
Thiftair once ordered a retainer who had offended
him to destroy himself. In the ashes of his situation
his wife adopted him. "Go away John and leave
your self, and do not displease the Laird. In
like manner a Philosopher should consider



himself the abject Slave man of ~~Bath~~, and 43
I should be ready to lay down ^{even} ~~a~~ an opinion, which
is often valued more than life, but he misleads
Ler. in the world as well as individuals has
suffered from the association of certain things
which have no necessary connection. The Polit-
tion has his honesty ^{improperly} ~~and~~ associated with his
party. Religious Creed is associated with Morality
and professional opinion with skill. And it is
because these three great points of pride in
men his honesty his morality and his skill, are
supposed to be attacked in the question of his
^{Mere} opinions, that he resists with such eagerness and
stolidity every ~~other~~ sight upon them. But it is
time for philosophy to supersede all connections
that impede the progress of Truth. —

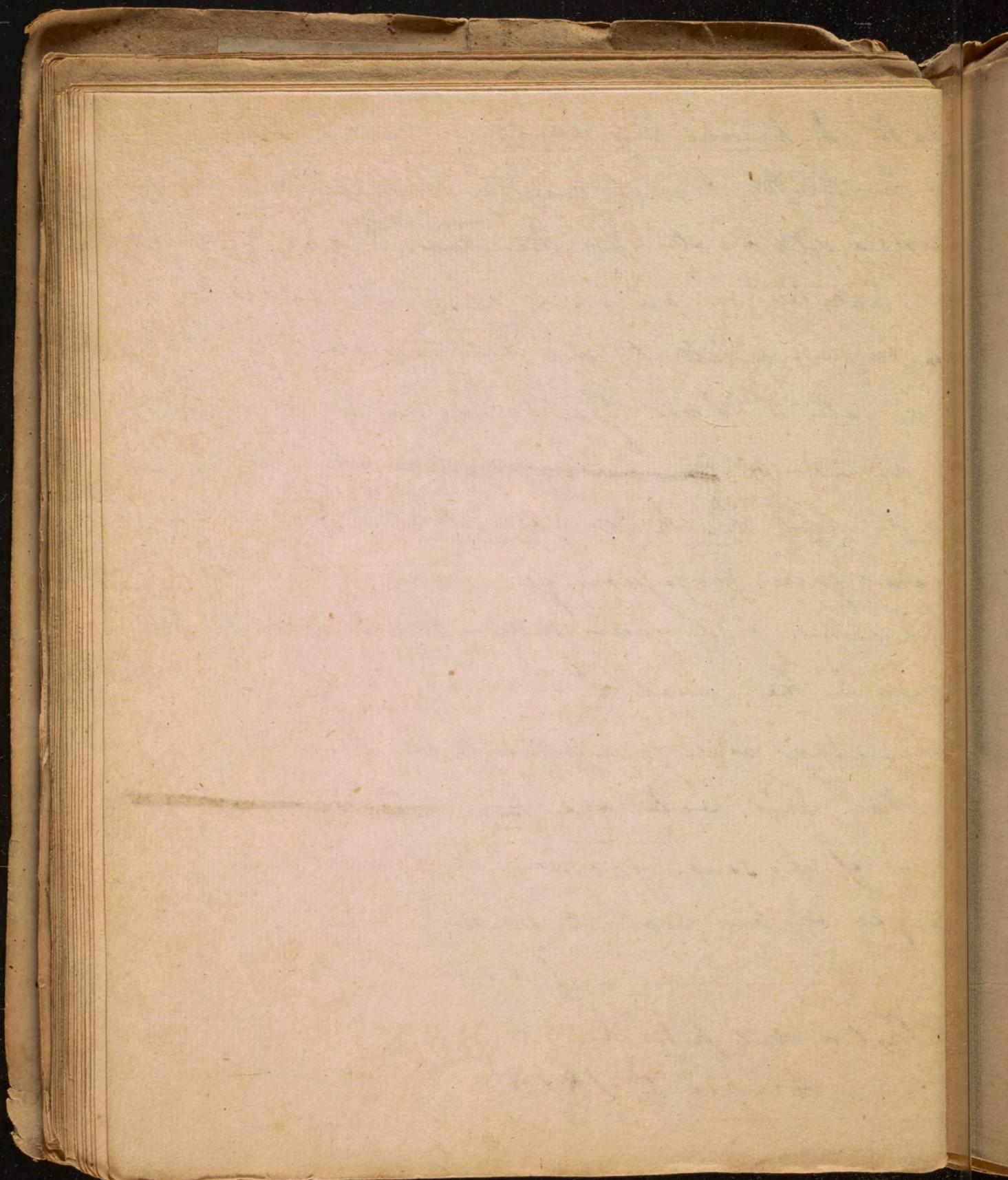
In viewing the lectures I will read to you, I
hope we may be governed by the principles I
am inculcating. I believe they contain much

These lectures used to address his
pupils —

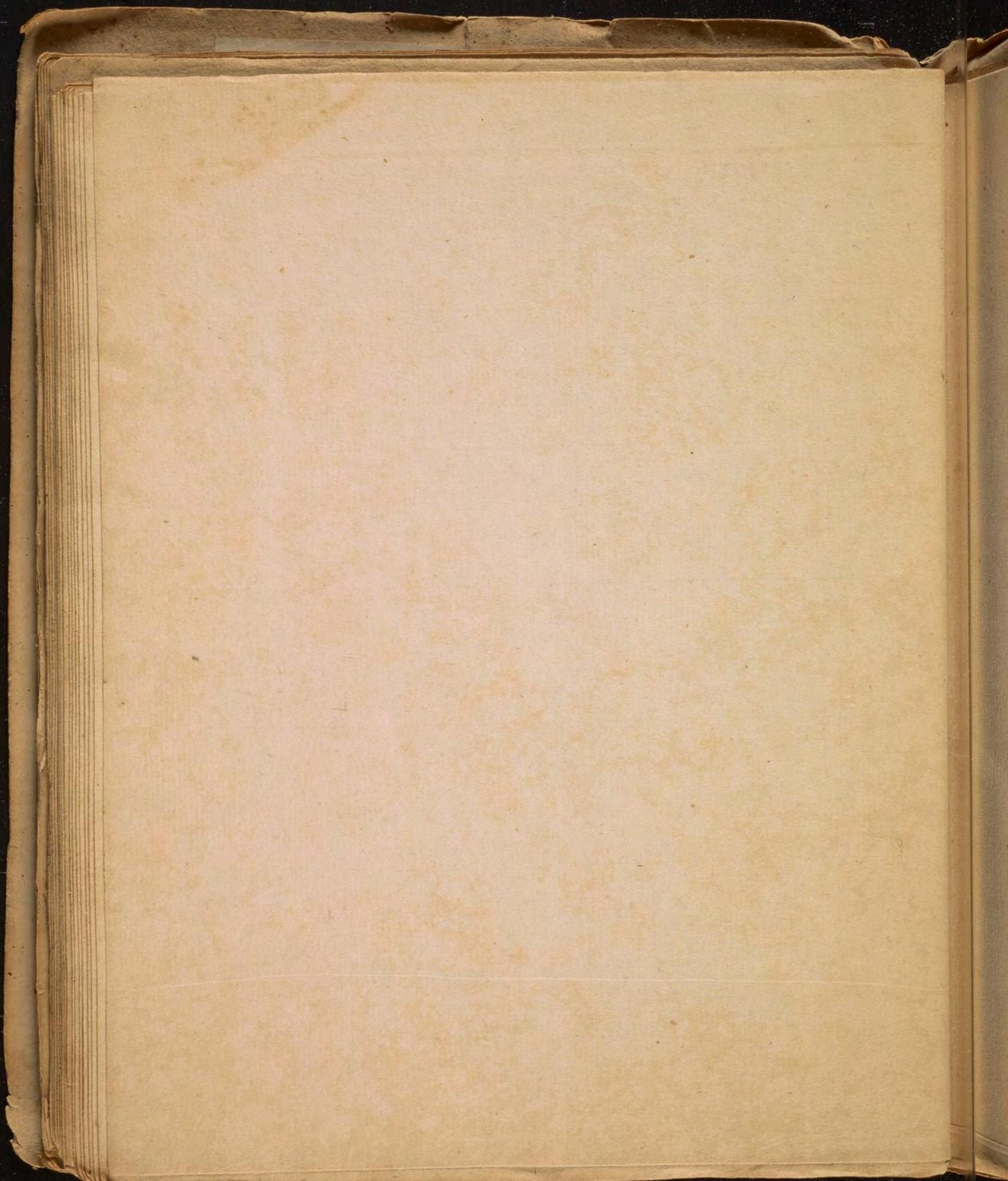
Speculation 44

truth. I know they contain much ~~error~~ for the truth I wish you to consider me the per-
severing advocate. For the ~~error~~ ^{speculations} I give no apology
but that they are on points of great difficulty to
~~men~~, human intellect, and that they are the work
of a fallible man. You know the words in which
the author of ~~Numbers addressed you~~ "Observe
Read and Think for yourselves" - If then in
choosing your profession, you have determined, be
sians aiming at your individual benefit, to
advance the cause of Science. Come let us use
our feelings and judgment on these lectures
together, and with one pen ~~and~~ ~~hand~~ blot
let us of it sum proper blot out whole
pages of his honest error. — —

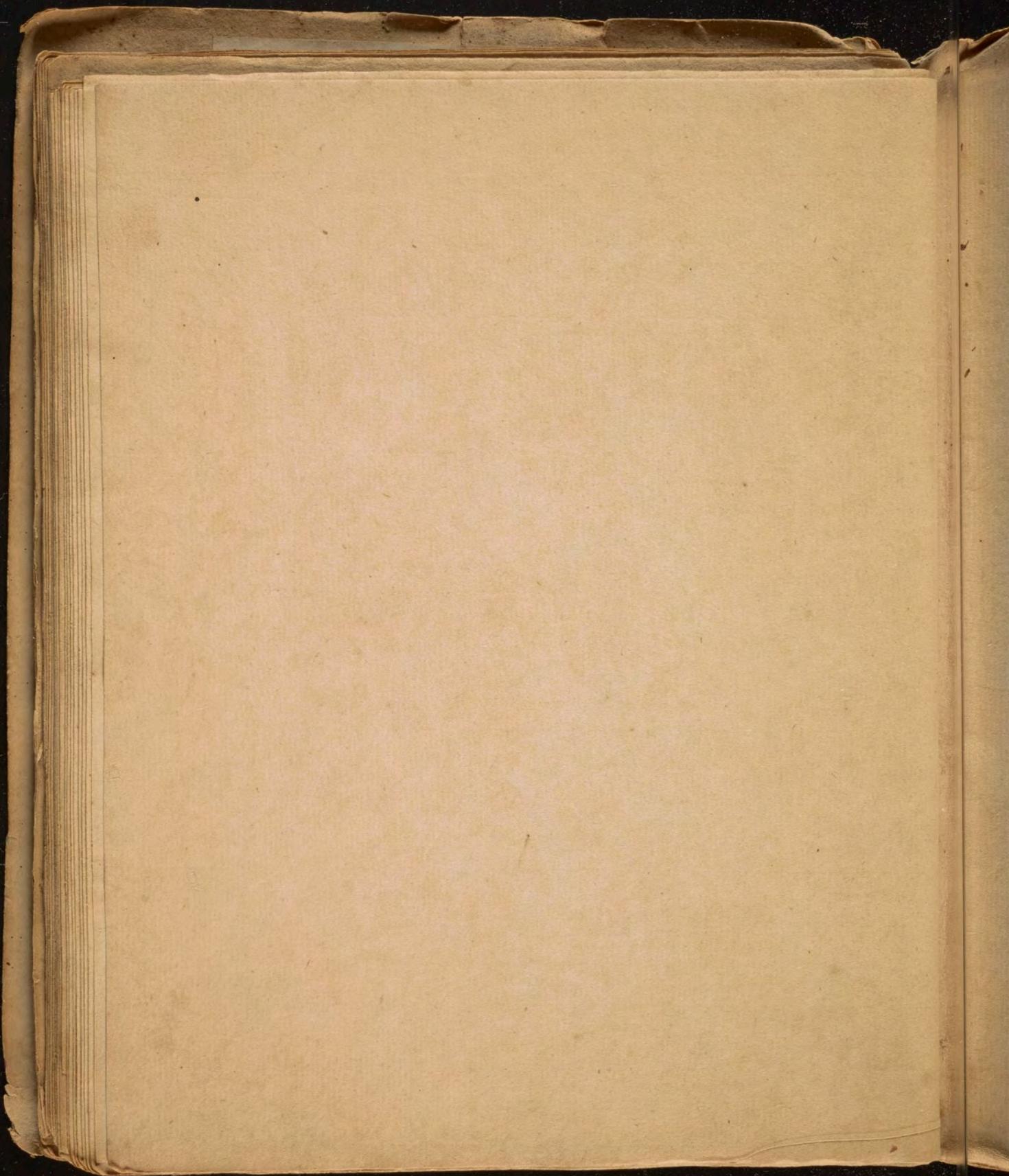
James Rush
Philadelphia
August 1813.



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